MANA Progress Report

Facts and Achievements 2010

World Premier International (WPI) Research Center
International Center for
Materials Nanoarchitectonics (MANA)

National Institute for Materials Science (NIMS)

Preface

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MANA Director-General
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More than three years have passed since our International Center for Materials Nanoarchitectonics (MANA) was launched in the National Institute for Materials Science (NIMS) in October 2007 as one of six research centers approved/supported by the World Premier International Research Initiative (WPI Program) of the Ministry of Education, Culture, Science and Technology (MEXT). The aim of MANA is to carry out world topnotch research for the creation of novel materials necessary for the development of innovative technologies that are inevitable for the realization of the sustainable society in the 21st century.

Thankfully, in the year 2010 so many outcomes of MANA have materialized; several scientists young and senior won prestigious awards and a number of research outcomes were published in high impact journals. Consequently, MANA activities and research achievements have been highlighted in many TV programs and news, and appeared in a number of articles in newspapers and magazines.

For our readers' convenience, the MANA Progress Report consists of two booklets named "Facts and Achievement 2010" and "Research Digest 2010". This booklet, which is the part "Facts and Achievements 2010", serves as a summary to highlight the progress of the MANA project in 2010. The other booklet "Research Digest 2010" contains an overview of MANA research activities in the calendar year 2010.

Lastly, on behalf of MANA, I would like to ask you for your continued understanding and support to MANA.

MANA Progress Report
Facts and Achievements 2010

1. Summary of MANA Center Project Program ····· 4

2. WPI Program and MANA ····· 6

2.1 What is WPI Program ?

2.2 Mission and Research Target of MANA

3. MANA Organization, Management and Evaluation ····· 10

3.1 Organization and Members

3.2 Management

3.3 Committee Evaluation

4. Attractive International Research Environment ····· 14

4.1 Melting Pot

4.2 Throughout Support for Foreign Researchers

4.3 Fostering Young Researchers

4.4 Access to Cutting-Edge Research Facilities

4.5 Research Support

4.6 New MANA and Environmental Research Building

5. Research Activities and Output ····· 18

5.1 Research Activities

5.2 Research Output

6. Global Network ····· 21

6.1 MANA Satellites

6.2 Partner Institutions and International Conferences

6.3 Enhancement of Partnerships with Universities

7. Enhancement of National and International Recognition ····27

7.1 MANA International Symposium
7.2 International Cooperation
7.3 MANA Website
7.4 Newsletter
7.5 Outreach Activities
7.6 Media Coverage
7.7 Visitors at MANA
7.8 MANA History

8. Appendix

8.1 MANA Top Management ····33
8.2 MANA Research Staff ····34
8.3 MANA Advisors ····42
8.4 MANA Evaluation Committee ····43
8.5 MANA Seminars ····44
8.6 Japanese Culture and Language Classes ····52
8.7 Research Papers and Books ····53
8.8 Editorial Activities ····76
8.9 Invited Lectures to International Conferences ····79
8.10 Patents ····93
8.11 Commendations ····103
8.12 International Cooperation ····113
8.13 Media Coverage ····115
8.14 Visitors at MANA ····117
8.15 MANA History ····124

1. Summary of MANA Center Project Program

● Center Size

As of March 31, 2011, there are 232 members at MANA, of whom 197 are researchers. There are 113 non-Japanese researchers, or 57% of the total, far exceeding the final target of 30% set for the WPI Program and making MANA a truly global research center. There are 38 female researchers, comprising 19% of the total, which has risen significantly from the 13 (11%) at the end of FY2007.

28 researchers with outstanding skills and experiences have been appointed as Principal Investigators (PI) from within and outside NIMS (NIMS: 20, Satellites: 8). The 28 PIs have been assigned as follows. Nano-Materials: 9; Nano-System: 11; Nano-Green: 6; Nano-Bio: 2.

MANA has established six satellites at the following domestic and foreign institutions: Univ. of Tsukuba, Tokyo Univ. of Science, Univ. of California Los Angeles (UCLA), Georgia Institute of Technology, Univ. of Cambridge, and the French National Center for Scientific Research (CNRS). These satellites are involved in research in each of the fields at MANA and serve as venues for training MANA's young researchers.

● Science Level

As of March 1, 2011, NIMS ranked 5th in the world for the number of institutional citations in the materials science field over the last 5 years according to the Thomson Reuters' ESI Database. About 50% of the aforementioned citations are from articles written by scientists affiliated with MANA. Given the ratio of MANA-affiliated scientists in NIMS (18%), one can see that MANA's contribution is great.

In FY2010, important research achievements began bearing fruit, and the number of reports appearing in newspapers suddenly increased by approximately three times. Particularly noteworthy of these achievements are the following:

- Photocatalyst materials leading to artificial photosynthesis
- Novel transistor with power consumption reduced to one-millionth
- World's highest performance thin film capacitor
- Groundbreaking electrolyte materials for micro-solid oxide fuel cells

MANA possesses the MANA Foundry, which is installed with the finest equipments. Moreover, MANA's researchers have access to much of the internationally cutting-edge and top-performance research facilities possessed by NIMS. In addition, MANA has located itself within NIMS's newest building. And it is expected that field integration will move ahead even further when the new research building is completed in 2012.

● Interdisciplinary Research Activities

Aiming to promote integrated research by young researchers, MANA launched the MANA Fusion Research Program. Some of the projects have been selected for the Funding Program for Next Generation World-Leading Researchers and Grant-in-Aid for Young Scientists A, while some research outcomes have been reported on widely in newspapers and online news sites.

As of March 2011, MANA Seminars have been held a total of 199 times. At these seminars, researchers from both within and outside MANA present hot research topics and engage in discussions with MANA researchers of different fields. Thus each seminar comes into its own as a true "melting pot." As a result, the seminars are playing a role in promoting field integration.

MANA implements a "camp"-type approach called "Grand Challenge Meetings" that bring together researchers from different fields. These meetings have proven to be highly beneficial in fusing various fields and motivating young researchers to tackle new challenges.

● Globalization of the Institution

In addition the majority of MANA's researchers being foreign nationals, many researchers from around Japan and overseas visit MANA. In this way, MANA is becoming an international research center that attracts researchers from around the world. Thus far, MANA has signed MOUs with 29 overseas research institutions, and it is pursuing joint research and personnel exchanges based on them. MANA is promoting the building of a network linking nanotech bases throughout the world, with MANA serving as the hub.

ICYS is firmly established as a gateway to success for permanent researchers of NIMS. Many researchers from around

the world apply for ICYS whenever regular international recruitment drives are held.

The MANA Administrative Section provides full technical and clerical supports to all researchers regardless of nationality and age and has nearly realized its mission of providing an environment in which researchers can devote themselves exclusively to their research.

● Organizational Reform

A system is established whereby three executives—the Director-General, Chief Operating Officer, and Administrative Director—hold discussions as necessary and make quick decisions regarding MANA's operation.

It is clearly mentioned in NIMS's third five-year plan that MANA will promote some areas of system reform (internationalization and human resources development) within NIMS. NIMS, the host institution, began a program to raise the English language skills of all young permanent administrative employees in FY2010. This program is intended to spread MANA's use of English as an official language to all areas of NIMS.

● Collaboration with Universities

Since MANA is a part of a public research center and not a university, we strive to collaborate with universities. MANA held 18 workshops with foreign and domestic universities by March 2011 with the aim of promoting research exchange and boosting MANA's name recognition in order to scout for talent.

In addition, NIMS operates the "NIMS Graduate Schools" with the Univ. of Tsukuba, Hokkaido Univ., and Waseda Univ. 20 MANA researchers serve as professors for this program, and they are currently supervising 31 PhD students. MANA also accepted 25 students from 8 foreign universities with which International Joint Graduate School Agreements were concluded. We have also accepted 89 internship students, 80 of whom were foreigners.

● Collaboration with Universities

The 3D (Triple-Double) System is extremely effective for cultivating young researchers by research guidance by more than one mentor (Double-mentor) to enhance independence, having more than one discipline (Double- discipline) to strengthen interdisciplinary background knowledge, and multiple affiliations (Double-affiliation) to strengthen an independent spirit. Many of MANA's young researchers have successfully advanced their careers either within or outside NIMS, having been promoted to NIMS group leaders or to positions at other research institutions.

● Securing Research Subsidies

In the past 3.5 years, MANA researchers have secured 7.82 billion yen in research funding. Each year, MANA's researchers continue to capture large-scale competitive funding, and the amount of external funds they acquire is growing steadily. The amount of external funding acquired in FY2010 has increased by 1.63 times compared to FY2008.

● Efforts to Improve Points indicated as Requiring Improvement

Making clear the Distinctiveness of Science being pursued in MANA

MANA publishes a scientific literature that explains nanoarchitectonics by targeting not only researchers but also the general public. MANA also publishes special features on MANA in journals of original papers by major MANA scientists in order to spread the word on the nanoarchitectonics concept's distinctive characteristics and to raise recognition of MANA.

Needs for Grand Challenge to create new Materials Science

To take on "grand challenges," MANA has started a "camp"-type approach called "MANA Grand Challenge Meetings," and creates a climate for fusing differing fields and motivating young researchers to tackle new challenges. Also, starting in FY2011, MANA has implemented the "MANA Grand Challenge Research Program" to nurture research that is highly creative yet risky.

Reinforcement of Nano-Bio Field

In September 2010, we newly named Dr. Takao Aoyagi as the field coordinator and a Principal Investigator of nano-bio, and reviewed both our research content and framework in this field. Research target has changed to the creation of biomaterials that make possible "material therapy," in which the material itself encourages sustained healing of biological tissue. And as for research implementation framework, MANA will appoint in April 2011 Dr. Guoping Chen of NIMS and Prof. Françoise Winnik of the Univ. of Montreal to serve as new PIs, thereby forming a staff of four PIs.

2. WPI Program and MANA

2.1 What is WPI Program ?

In 2007, Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) established a program to create new type of research center. The aim was to facilitate advanced research by promoting participation of leading scientists from around the world and by providing an attractive research environment. This was called the World Premier International (WPI) Research Initiative.

The National Institute for Materials Science (NIMS) was one of the original five institutes selected for a WPI grant in 2007 and later in October of that year, established the International Center for Materials Nanoarchitectonics (MANA). In 2010, a sixth WPI center at Kyushu University was added. Table 2-1 summarizes the six WPI Research Centers with MANA being the only one not integrated into a university.

Table 2-1: The six WPI Research Centers.

Host Institution	WPI Research Center	Research Field
Tohoku University	Advanced Institute for Materials Research (AIMR)	Materials Science
University of Tokyo	Institute for the Physics and Mathematics of the Universe (IPMU)	Astrophysics
Kyoto University	Institute for Integrated Cell-Material Sciences (iCeMS)	Meso-Control & Stem Cells
Osaka University	Immunology Frontier Research Center (IFReC)	Immunology
National Institute for Materials Science	**International Center for Materials Nanoarchitectonics (MANA)**	**Nanotechnology & Materials Science**
Kyushu University	Carbon-Neutral Energy Research Institute (I^2CNER)	Energy & Environment

The WPI Initiative selected members on the basis of their ability to attract leading researchers from across the globe and bring together a wide range of researchers including young scholars, postdoctoral associates, and graduate students in an environment that should possess a certain level of "global visibility." The six institutes of the WPI program have the following objectives:

- Advance leading-edge research
- Create interdisciplinary domains
- Establish an international research environment
- Reform the organization of research

Each WPI center is actively engaged in building up an extraordinary roster of researchers and in creating the best environment for them to flourish in. To assist the WPI research centers in carrying out this mandate, the Japanese government provides them with long-term (10-15 years) and large-scale financial support (annual average budget of 1.4 billion JPY per center).

2.2 Mission and Research Target of MANA

● What is MANA?

Materials nanoarchitectonics is a new research paradigm of materials development, which attempts to extract and use the ultimate functions of materials based on a profound understanding of the mutual interaction between individual nanostructures and arbitrary arrangement of those nanostructures.

● **Mission of MANA**

To achieve goals of the WPI program, MANA aims to develop innovative materials by using nano-technology as a fundamental research center, especially for next-generation nano-science and technology.

- To promote interdisciplinary research by materials nanoarchitectonics
- To serve as a "Melting Pot", where top-level researchers gather from all over the world
- To secure and cultivate outstanding, innovative young scientists
- To construct a network of nanotechnology centers throughout the world

● **Research Target of MANA**

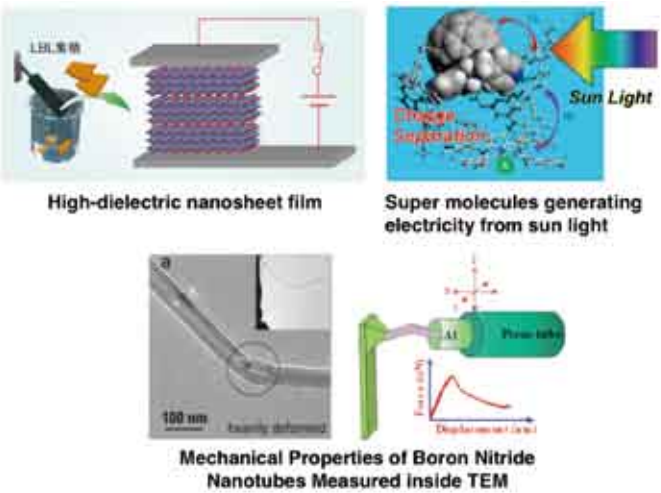
As illustrated in Fig. 2-1, Materials Nanoarchitectonics uses five key technologies. By converging these five key technologies, MANA focuses on the four research fields Nano-Materials, Nano-System, Nano-Green and Nano-Bio to develop novel materials and systems at the nanometer scale and to create epoch-making innovations in materials science and technologies. This contributes to the development of various new technologies that are necessary for the realization of a sustainable society. MANA aims to become a unique hub of materials nano-science and nano-technology.

Fig. 2-1: Research Directions of MANA.

Detailed research objectives for each field are as follows:

Nano-Materials Field:

Utilizing unique synthetic techniques developed in NIMS, e.g., soft-chemical processes, the Nano-Materials Field systematically explores and creates new nanoscale materials (e.g., nanotubes, nanowires, nanosheets, nanoparticles) based on a wide range of organic to inorganic materials, and aims to unravel new and enhanced properties in them. Furthermore, these newly developed nanomaterials are assembled via chemical manipulation and alignment control by external fields to design/tailor highly organized nanostructures. Through these strategies, revolutionary electronic, magnetic, optical and chemical functionalities will be developed to contribute the progress of electronics and the solution of energy/environment issues (see Fig. 2-2).



High-dielectric nanosheet film

Super molecules generating electricity from sun light

Mechanical Properties of Boron Nitride Nanotubes Measured inside TEM

Fig. 2-2: Research objectives of the Nano-Materials Field.

Nano-System Field:

The Nano-Systems Field not only explores new nanoscale materials that exhibit superior nano properties but also investigates new cooperative functions that are generated as a result of the mutual interactions that nano structural units exert with each other and tries to develop nanosystems that organize these cooperative properties. Over the near term, the research will likely continue to focus on technological innovation in the fields of information processing and environmental monitoring. In the domain of information processing, the field aims to push the boundaries of conventional CMOS devices through development of new nanodevices, as well as create new information processing systems or quantum information processing systems that can learn from and even outperform neural networks. In the domain of environmental monitoring, the field is developing new methodologies that will enable detection of several hundred different types of particles in the environment, including gasses, liquids and biological materials, and new techniques that will enable monomolecular sensitivity to the same types of particles as well as spatial resolution measured in nanometers (see Fig. 2-3).

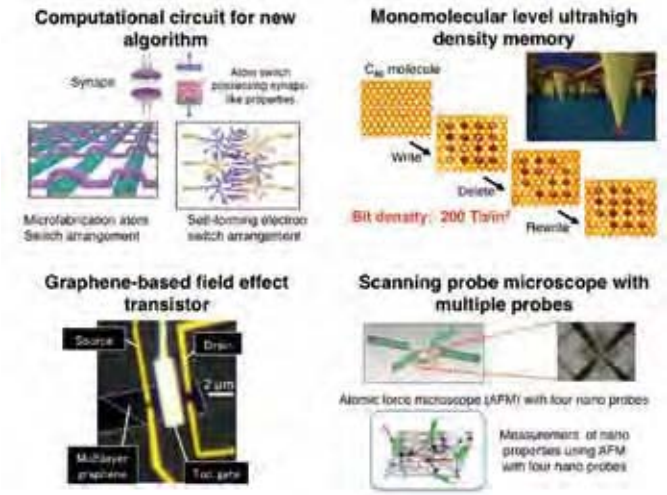


Fig. 2-3: Research objectives of the Nano-Systems Field.

Nano-Green Field:

In order to establish the fundamentals for a renewable energy system with the sun as the primary energy source, which is required for the sustainable-society, the Nano-Green Field carries out research on the construction of efficient interfacial energy conversion processes by arranging atoms and molecules on surfaces in a controlled manner, i.e., Surface Nanoarchitectonics. Theoretical design and advanced material synthesis techniques with high precision are being utilized to develop highly efficient photo catalysts for water splitting, dye-sensitized solar cells, and catalysts for fuel cells and photo electrolysis of water. In addition solid-state Li-ion batteries with a high power density and micro-solid oxide fuel cells will be realized (see Fig. 2-4).

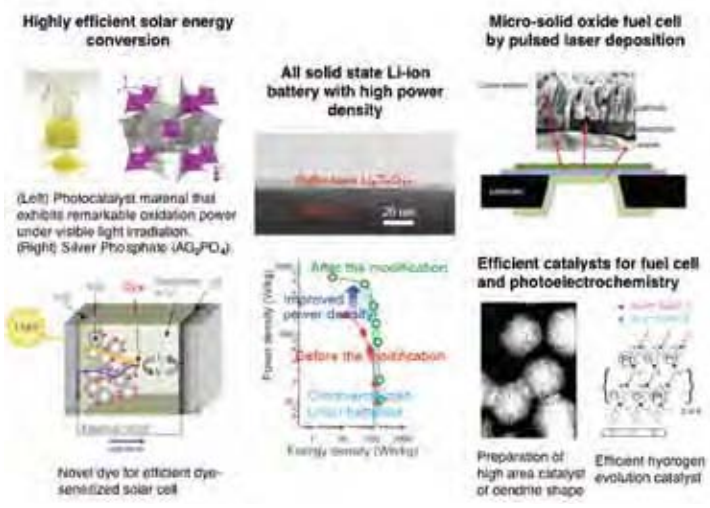


Fig. 2-4: Research objectives of the Nano-Green Field.

Nano-Bio Field:

Using fundamental technologies based on new materials that actively interact with cells or living organisms, biocompatible materials, and minimum invasive sensing, the Nano-Bio Field conducts research on target-oriented drug delivery systems, new pharmaceutical systems that combine imaging functionality with therapeutic efficacy, and materials therapy, in which the type materials used enhances the benefits gained from a particular therapy (see Fig. 2-5). In addition, it also conducts research in artificial organs or treatment systems that use high-efficiency cell culture matrixes, which control cell differentiation, and composite materials that restore biofunctions, with the goal of developing medical regenerative technologies that draw on new materials.

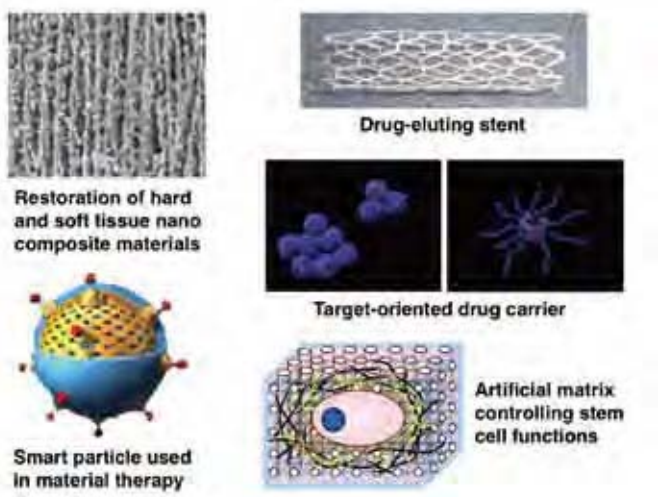


Fig. 2-5: Research objectives of the Nano-Bio Field.

3. MANA Organization, Management and Evaluation

3.1 Organization and Members

In order to realize the MANA concept, it is extremely important to establish efficient organizational operation. An overview of the MANA organization is shown in Fig. 3-1. The role of MANA members are explained in Table 3-1.

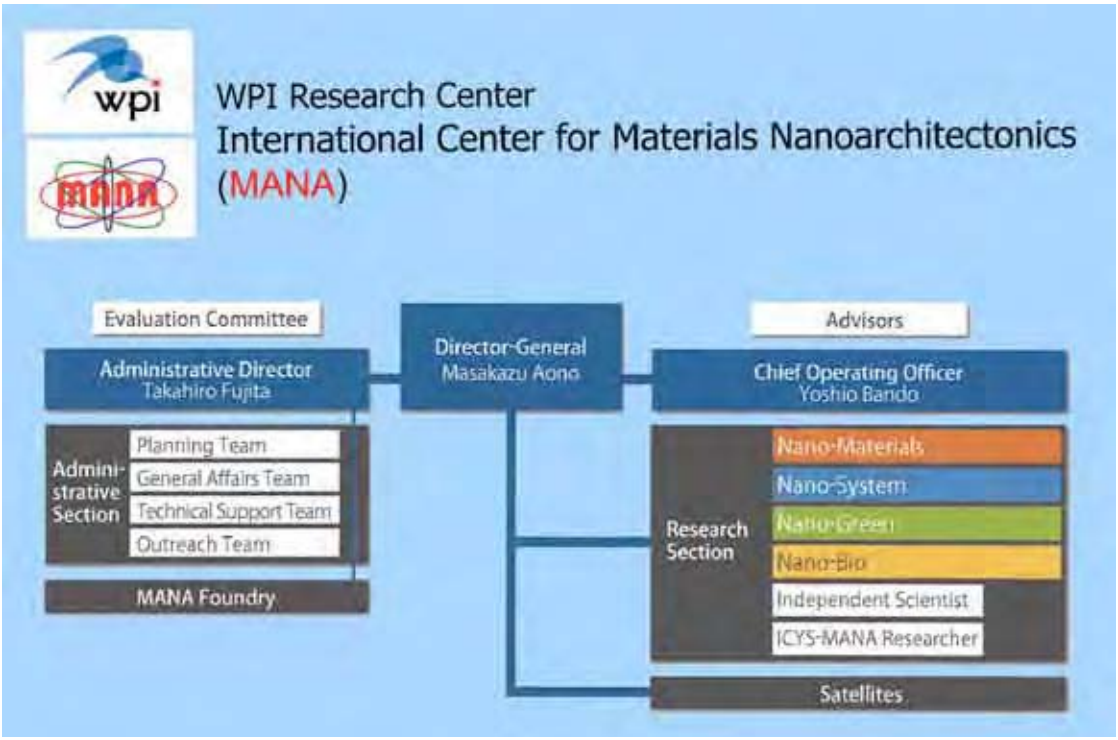


Fig. 3-1: Organization Chart of MANA.

Table 3-1: MANA Members and Duties.

Director-General:	Center oversight.
Chief Operating Officer:	Assists the Director-General and supervises research.
Administrative Director:	Takes orders from the Director-General and supervises clerical and administrative duties.
Principal Investigators (PI):	Internationally known world top-class scientists who play leading roles in achieving MANA research targets and in fostering younger researchers through mentoring. Principal Investigators are selected from NIMS and other domestic and overseas institutes.
MANA Scientists:	Researchers from NIMS who perform MANA research together with Principal Investigators.
MANA Independent Scientists:	Younger researchers from NIMS who work full-time at MANA and can perform their own research independently in the 3D system.
ICYS-MANA Researchers:	Postdoctoral fellows selected from all over the world by open recruitment. They perform their research independently while receiving advice from mentors and Principal Investigators.
MANA Research Associates:	Postdoctoral fellows working in a group of Principal Investigators or MANA Independent Scientists.
Graduate Students:	Doctor-course students at institutions affiliated with NIMS. They participate in research at MANA under the tutelage of Principal Investigators, MANA Scientists and Independent Researchers.
Research Support Staff:	Technicians that support research work.
Administrative Staff:	Staff that supports administrative duties.

As of January 1, 2011, MANA employs 228 staff (see Fig. 3-2). Of this number, 194 are researchers. There are 110 foreign researchers, or 56.7% of the total, and the 38 female researchers constitute 19.6% of the total. MANA has developed a multinational work force with foreigners from 20 different countries (see Fig. 3-3). Foreign and female researcher numbers have increased steadily, but given the size of the Center, we feel these are appropriate levels and will continue to maintain them going forward.

Appendix 8.1: MANA Top Management
Appendix 8.2: MANA Research Staff

Current as of January 1, 2011

Classification	Number		Foreigner	Female
Principal Investigator (NIMS)	21	28	5	1
Principal Investigator (Satellite)	7		4	0
MANA Scientist	45	166	8	5
Independent Scientist	14		3	1
ICYS-MANA Researcher (Postdoc)	15		9	1
MANA Research Associate (Postdoc)	61		53	20
Junior Researcher (Graduate Student)	31		28	10
Technical Staff	16	34	0	7
Administrative Staff	18		1	14
Total	228		111	59

Proportion of Foreign Researchers: 56.7% (110/194)
Proportion of Female Researchers: 19.6% (38/194)
(increase from 12.4% on January 1, 2010)

Fig. 3-2: Workforce of MANA.

Current as of January 1, 2011

Region	Country	PI	MANA Scientist	Independent Scientist	ICYS-MANA Researcher	Research Associate	Graduate student	Staff	Total
Asia	Bangladesh		1						1
	China	2	3		3	34	15		57
	India			1	2	9	5		17
	Korea				1	2	1		4
	Nepal				1				1
	Thailand						1		1
Oceania	Australia					1			1
Europe	Bulgaria					1			1
	France	1		1					2
	Italy	1	3			2	2		8
	Poland					1			1
	Russia	1		1					2
	Switzerland							1	1
	Turkey					1			1
	United Kingdom	2	1						3
Near East	Egypt						1		1
	Iran						3		3
	Jordan				1				1
America	USA	2			1	1			4
	Argentina					1			1
Subtotal		9	8	3	9	53	28	1	111

Fig. 3-3: Foreign Staff of MANA.

3.2 Management

● Allocation of authority between NIMS and MANA

The NIMS president, as the responsible person of the host institute, supports the operation of the MANA center to the fullest extent, while respecting the authority of the MANA Director-General the operation of MANA. However, upon some situations such as receipt of any advice from the Steering Committee and NIMS Executive Board, the NIMS president reserves the right to take various additional measures necessary for the center operation including, for example, improvement of the experimental space and additional assignment of permanent NIMS researchers.

The Director-General of MANA has authority over the center's operation in general. He possesses the authority to allocate Center resources such as budget funds and space. This includes employment and renewal of contracts for researchers and administrative staff members of the MANA center, except for those who are enrolled in the main body of NIMS.

● Decision-making system

The center, as its basic principle, intends to establish a decision-making system that can support strong leadership of the center director. In addition, the center intends to minimize the number of meetings in its operation so that the researchers can devote themselves to their studies. A principal investigators meeting led by the center director is held on a regular basis (about once every month). Matters concerning center operation in general are discussed and reported under the full leadership of the center director. Also, the principal investigators must clearly communicate the intentions of the center director to all the young researchers and graduate students. On October 1, 2008, a Chief Operating Officer was assigned to work under the Director-General in order to reduce the burden on the Director-General and to allow for more efficient and speedier Center management. The Administrative Director oversees administrative duties, while the Chief Operating Officer supervises research. In light of the Center's administrative issues, the MANA Executive Meeting was put in place to allow the Director-General, Chief Operating Officer and Administrative Director to confer at any time to make snap decisions on Center management.

There are currently five external stakeholders, including Nobel Prize winners and prominent researchers, serving as MANA Advisors (see Appendix 8.3). They provide advice on overall Center management and invaluable suggestions on individual research projects, as well as cooperate with our outreach activities by serving as lecturers in science seminars geared toward elementary and junior high school students.

Appendix 8.3: MANA Advisors

● MANA Administration

Starting in 2003, NIMS has about five years experience in research, using English as the official language of ICYS activities. Therefore, it has the advantage of being able to perform both efficient and international administrative operation by making the best use of its experience and know-how acquired in ICYS. All the documents regarding, for example, office routine regulations, purchase of items, and official trips are today already available both in Japanese and English. As a result, an environment of supporting documentation is close to perfection so that foreigner researchers can devote themselves to their study without a language barrier. Based on the experience in ICYS, MANA has established three teams, *Planning Team*, *General Affairs Team*, *Technical Support Team* in October 2008 and added an *Outreach Team* in April 2010. All staff of the MANA Administration is fluent in English.

3.3 Committee Evaluation

● WPI Program Committee

The Evaluation of MANA by the WPI Program Committee consists of an annual Site-Visit at MANA and an annual Follow-Up Meeting. Primary Evaluation criteria are the Achievements of Science as well as the Implementation as a WPI Research Center. The third Site-Visit was held in January 2010 (see Fig. 3-4). The fourth Site-Visit is planned in June 2011.

In January 2010, visiting members of the WPI Program Committee were:

Prof. Toshio Kuroki	Program Director (PD)
Prof. Gunzi Saito	Program Officer (PO), NIMS
Prof. Yoshihito Osada	Program Officer (PO), Tohoku University
Prof. Yoshinobu Aoyagi	Working Group Member

Prof. Takehiko Ishiguro	Working Group Member
Prof. Hiroshi Yoshida	Working Group Member
Prof. Dave L. Allara	Working Group Member
Prof. Klaus von Klitzing	Working Group Member

The MANA Progress Report was presented by MANA Director-General Prof. Masakazu Aono (entitled: "Research: Recent Results and Future Goals") and by MANA Chief Operating Officer Prof. Yoshio Bando (entitled: Operation: Present Status and Future Plans). Afterwards 9 MANA Principal Investigators held 20 minutes presentations about "Research Activities and Achievements". The schedule also included "Overall discussions", "Interviews" and "Observation of MANA research facilities".



Fig. 3-4: WPI Program Director Prof. Toshio Kuroki (left) and WPI Program Officer Prof. Gunzi Saito (middle) at the third MANA Site-Visit in January 2010.

● **MANA Evaluation Committee**

The MANA Evaluation Committee is comprised of 10 external stakeholders, and Professor Anthony Cheetham of the University of Cambridge acts as Chairman (see Appendix 8.4). The committee has met twice to date, on March 12, 2008 and March 10, 2010, to evaluate MANA research activities and administration. MANA formulates Action Plans based on the Committee's suggestions and proposals.

The second MANA Evaluation Committee Meeting was held in Tsukuba in March 2010.

Participants from MANA Evaluation Committee:

Prof. Anthony Cheetham (Chair)	University of Cambridge, UK
Prof. Morinobu Endoh	Shinshu University, Japan
Prof. Horst Hahn	Karlsruhe Instiute of Technology, Germany
Prof. Yoshio Nishi	Stanford University, USA
Prof. Manfred Rühle	Max-Planck Institute of Metals Research
Prof. Louis Schlapbach	Former Director of EMPA, Switzerland

Participants from NIMS/MANA:

Prof. Sukekatsu Ushioda	NIMS Preseident
Prof. Yukichi Umakoshi	NIMS Vice-President
Prof. Masakazu Aono	MANA Director-General
Prof. Yoshio Bando	MANA Chief Operating Officer
Dr. Takahiro Fujita	MANA Administrative Director

The presentation of the MANA Progress Report by MANA Director-General Prof. Masakazu Aono and MANA Chief Operating Officer Prof. Yoshio Bando was followed by a longer discussion and comments from the Evaluation Committee members.

Appendix 8.4: MANA Evaluation Committee

4. Attractive International Research Environment

MANA is one of the most internationalized research centers in Japan. MANA is firmly advancing the development of an outstanding international research environment in an effort to create a "highly visible research center".

4.1 Melting Pot

When people from diverse backgrounds and with different opinions and view points are able to freely meet and interact, an environment highly conductive to innovation is created. MANA sees itself as a melting pot that offers researchers from a wide range of fields and with diverse cultural and national backgrounds the opportunity to work in such a cosmopolitan environment. Whether in the lab, in the cafeteria, or during events and other activities, there are always opportunities for communication and interaction. We believe that comprehensive research that spans diverse fields will prove beneficial for many positive future developments. With a view to further enhancing the cosmopolitan atmosphere at MANA, we are actively encouraging the participation of scientists from around the globe. Currently, more than half of our researchers come from countries other than Japan.

As part of the Melting Pot activity, researchers from MANA are requested to present their research field at the MANA Seminars. When renowned researchers visit MANA, they held seminars to introduce their research projects to stimulate MANA researchers and promote interdisciplinary synergies. In 2010 MANA seminars were conducted with 28 speakers from MANA and 94 invited renowned researchers from around Japan and the world (total 122 speakers).

Appendix 8.5: MANA Seminars

Fig. 4-1: Left: Technical staff providing research support; Middle: MANA Café, a venue for mutual communication and mingling; Right: Administrative staff providing clerical support.

4.2 Throughout Support for Foreign Researchers

The official language of MANA is English. MANA employs experienced staff who are fluent in the language, and administrative support systems are in place to ensure that scientists of all nationalities can focus on their research (see Fig. 4-1). Seminars and meetings are held in English, and e-mail communication, intranet information, research plans, and administration documentation are all in English as well. Major information pamphlets, the web site, and other publications are to a large extent bilingual. Thus allowing all researchers – foreign nationals and Japanese alike – to devote themselves to their research. Furthermore, MANA provides comprehensive assistance to foreign researchers in matters such as registration procedures, finding housing, and emergencies to get them established in Japan. MANA also offers regular Japanese culture and Japanese language classes for foreign researchers to foster an understanding of the host country. In 2010, 176 participants joined the Culture Classes and 118 participants attended the Language Classes (see Fig. 4-2 and Appendix 8.6). There are public accommodation facilities nearby for foreign researchers who work at MANA, making for an ideal environment.

Appendix 8.6: Japanese Culture and Language Classes

Fig. 4-2: Participants of the Japanese Culture Class program 2010 experienced a training class of Karate in May (left), a Japanese Drum class "Wadaiko" in September (middle) and a Japanese Tea Ceremony class "Cha-Kaiseki" in October (right).

4.3 Fostering Young Researchers

Young researchers at MANA which is affiliated with NIMS are encouraged to work under the tutelage of one NIMS member and one external non-NIMS member, often based overseas. Researchers typically have two mentors (Double mentor), are affiliated to two research institutions (Double affiliation) and perform research in two fields (Double discipline). This is called the 3D, or Triple Doubles System. It aims at fostering scientists and researchers with a truly global perspective and the capability to adopt an interdisciplinary approach.

Many independent scientists work part of the year under an overseas mentor, to hone their skills. Direct contact and interaction with top-level researchers around the world is invaluable for staying abreast of advanced developments at the cutting edge of science (see Fig. 4-3). In future, the global outlook and discipline-integrated research stance of MANA will become even more central to our activities.

MANA Scientists and Independent Scientists can propose which mentors they would like to work with. ICYS-MANA Researchers are first provided with an environment in which they can conduct self-motivated research, after which mentors are assigned. In this manner we have created a system in which we maintain respect for young researchers' autonomy while providing them with research advice.

ICYS-MANA is an evolution of the "International Center for Young Scientists" (ICYS) program originally hosted by NIMS. Gifted and ambitious young researchers from around the world can apply, and those who are selected are given the opportunity to conduct their respective research while having access to an interdisciplinary linkup in a "melting pot" environment. MANA's Principal Investigators also serve as mentors for ICYS-MANA Researchers.

Fig. 4-3: Left: A young MANA researcher (Dr. Naoki Fukata) in discussion with Prof. Z.L. Wang of the Georgia Institute of Technology, an overseas MANA satellite institution. Right: Prof. Sir Harry Kroto (MANA Advisor and winner of 1996 Nobel Prize in Chemistry) and an ICYS-MANA Researcher (Dr. Xiaosheng Fang).

4.4 Access to Cutting-Edge Research Facilities

MANA researchers have full access to the world's most advanced, high-performance research facilities at NIMS (see Fig. 4-4). MANA is home to the MANA Foundry, a collection of top-class equipment that provides the backup for nano-architectonics research ranging from nano-fabrication to nano-characterization. In addition to the Foundry, MANA houses various shared facilities and employs experienced technicians to provide maintenance and support.

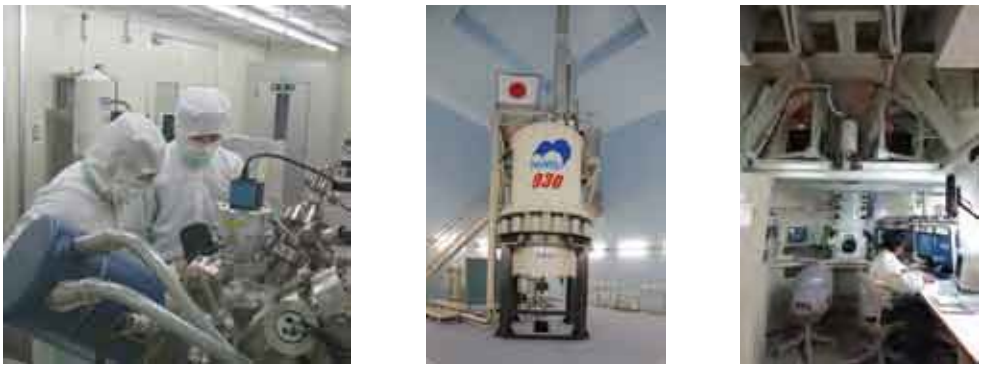


Fig. 4-4: Cutting-edge research facilities at MANA and NIMS: X-ray photoelectron spectroscopy XPS in the MANA Foundry (left), 930 MHz NMR magnet (middle) and Transmission Electron Microscope (right).

4.5 Research Support

● **Startup Research Funding**

In principle MANA researchers are expected to secure external funding for their research, but MANA provides start-up research funds to researchers invited from external organizations so that they can launch their own laboratories immediately.

● **Technical Support for Research**

The Technical Support Team of the Administration Section currently employs 4 staff to provide assistance with experiments and device maintenance. Three of the 4 staff are retired NIMS researchers who are extremely well-versed and fluent in English. They serve as excellent advisors to all young foreign and Japanese researchers.

● **Patent Application Assistance**

MANA employs a part-time patent specialist who is fluent in English. He is working to turn MANA research output into protected intellectual property.

● **Orientations**

NIMS conducts initial training in English for newly hired foreign researchers and holds orientations and lab tours for new researchers and graduate students.

4.6 New MANA and Environmental Research Building

Construction work of the new MANA and Environmental Research Building, located next to the existing MANA Building at NIMS Namiki-sie, has started in 2010 (see Figs. 4-5, 4-6). The new building is slated for completion by spring 2012 and will have a "Melting Pot Zone" with a cafeteria, a conference room, foyers and terraces. It is designed so that scientists of different fields can gather together and interact freely with each other. The new building is also designed to achieve the country's highest level of energy efficiency and environment-friendliness through the installation of solar panels on the roof and LED array lighting on the ceilings among other approaches.

Fig. 4-5: Next to the existing MANA Building at NIMS Namiki-site (left), construction work of the new MANA and Environmental Research Building (right) has started in 2010.

Fig. 4-6: Construction site of new MANA and Environmental Research Building in middle of December 2010 (left) and early March 2011 (right).

5. Research Activities and Output

5.1 Research Activities

● Research Digest 2010

For an overview of MANA research activities in the calendar year 2010, please refer to the booklet "Research Digest 2010", which is part of the MANA Progress Report. Important research achievements of MANA in 2010 are:

- Photocatalyst materials leading to artificial photosynthesis
- Novel transistor with power consumption reduced to one-millionth
- World's highest performance thin film capacitor
- Groundbreaking electrolyte materials for micro-solid oxide fuel cells

● Reinforcement of Nano-Bio Field

In September 2010, MANA newly named Dr. Takao Aoyagi as the field coordinator and a Principal Investigator of the Nano-Bio Field, and reviewed both the research content and framework in this field. Research target has changed to the creation of biomaterials that make possible "material therapy," in which the material itself encourages sustained healing of biological tissue. In order to strengthen the Nano-Bio Field, MANA plans to increase the number of MANA Principal Investigators in this field from currently 2 (as of January 1, 2011) to 4 persons.

● Interdisciplinary Research Activities

Aiming to promote integrated research by young researchers, MANA launched the MANA Fusion Research Program (MFRP) in 2009 with the 6 projects listed in Table 5-1. This scheme has already produced significant results. Among them is the selection of "Research on a new highly efficient solar cell using Si nano-wires" by Dr. Naoki Fukata for the Funding Program for Next Generation World-Leading Researchers (NEXT Program). And a "Revolutionary membrane-type surface stress sensor" developed by Dr. Genki Yoshikawa was widely reported on in newspapers and websites and selected for Grants-in-Aid for Young Scientists A.

To take on grand challenges, MANA has started a "camp"-type approach called "MANA Grand Challenge Meetings" that bring together researchers from different fields. These meetings have proven to be highly beneficial in fusing various fields and motivating young researchers to tackle new challenges. MANA plans to start a "MANA Grand Challenge Research Program" to nurture research that is highly creative yet risky.

Table 5-1: List of MFRF projects approved in 2009.

	Name	Collaborators	Research Title
1	Yusuke Yamauchi Naoki Fukata	Chisato Niikura (Advanced Photovoltaics Center, NIMS)	Formation of energy conversion Si materials using self-organization process
2	Satoshi Moriyama	Masayoshi Higuchi (MANA)	Structure and property control of grapheme by integration of fabrications and organic synthesis
3	Daniele Pergolesi	Toshihide Nabatame (MANA Foundry) Emiliana Fabbri (MANA) Akira Toriumi (Professor, Univ. of Tokyo)	Non-Volatile Memory FET based on Proton Conducting Oxide
4	Genki Yoshikawa	Pavuluri Srinivasu (ICYS-MANA)	Development of Nano-Sieve Cantilever Array Sensors
5	Pavuluri Srinivasu	Yuji Miyahara (MANA)	Novel Three-dimensional Functional Nanoporous Materials for Efficient Drug Delivery Systems and Bone Tissue Engineering
6	Jun Nakanishi	Yoshitaka Yoshitaka (MANA) Shunsuke Tsuda (MANA)	Understanding of photocleavage reaction at solid surface and development of new biointerfaces

● **Invitation of Foreign Researchers**

MANA has 3 researcher invitation programs to ensure that MANA is a research center that attracts all levels of researchers from around the world.

NIMS Open Research Institute Program:

This program is run by NIMS and brings together all levels of researchers from young researchers to highly regarded scientists. By March 2011, 125 researchers were invited to MANA by this program.

MANA Short-Term Research Program:

This is an original MANA program that invites faculty members from foreign research institutes who can conduct joint research with MANA researchers. Invitees stay at MANA for 1 to 3 months. By March 2011, 33 researchers were invited by this program.

JSPS Invitation Program:

This program was funded by the first supplementary budgets for FY2009 and was held this fiscal year only. Pairs of globally-active scientists and young researchers were invited with the aim of cultivating young researchers and internationalizing the research environment. By adding NIMS subsidies MANA invited 7 renowned researchers and 11 young researchers from the West at the beginning of 2010. MANA also held a stay-over workshop in late March 2010 when more researchers gathered by this program.

Furthermore, more than 200 researchers had been invited to MANA for seminars and collaborative discussions by March 2011.

5.2 Research Output

● **Research Papers and Books**

Research Papers from MANA continue to increase in number from about 390 papers in 2008, to about 560 papers in 2009 and about 600 papers in 2010. The list of research papers and books 2010, shown in Appendix 8.7, contains the "digital object identifier" (DOI)", which can be resolved at http://dx.doi.org/ . A digital object identifier (DOI) is a unique alphanumeric string assigned by a registration agency (the International DOI Foundation) to identify content and provide a persistent link to its location on the Internet. In 2010 researchers from MANA have published many papers in high-impact factor journals as Nature Materials (2x), Nature Physics (2x), Journal of the American Chemical Society (18x), Advanced Materials (16x), Angewandte Chemie International Edition (6x), Nano Letters (6x), Biomaterials (4x) and Physical Review Letters (3x).

Appendix 8.7: Research Papers and Books

● **Citation Ranking**

As of March 1, 2011, NIMS ranked 5th in the world for the number of institutional citations in the materials science field over the last 5 years (January 2006 to December 2010) according to the Thomson Reuters' ESI Database. About 50% of the aforementioned citations are from articles written by scientists affiliated with MANA. Given the ratio of MANA-affiliated scientists in NIMS (18%), one can see that MANA's contribution is great. MANA has cleared one of the 5-year mid-term objectives of ranking within the top 5 in the world.

● **Editorial Activities, Invited Lectures**

In addition to writing research papers, many MANA members are also Members of Board of Journals (see Appendix 8.8) and are invited to give lectures at international conferences (see Appendix 8.9).

Appendix 8.8: Editorial Activities
Appendix 8.9: Invited Lectures to International Conferences

● **Patents**

Researchers from MANA actively continue to apply for patents. The list of Patents between October 2007 and December 2010, shown in Appendix 8.10, contains patent applications for more than 160 Japanese patents and more than 20 international patents, as well as patent registrations for more than 40 Japanese patents and more than 10 international patents.

Appendix 8.10: Patents

● **Commendations**

In 2010 MANA's renowned researchers have won again many awards (see Fig. 5-1), which include the two following prestigious Prizes:

Feynman Prize in Nanotechnology

Dr. Masakazu Aono (MANA Director-General) won the "2010 Feynman Prize in Nanotechnology" by the Foresight Institute, USA. The ceremony will be held in USA in 2011. Dr. Masakazu Aono was appraised in recognition of his pioneering and continuing work, including research into the manipulation of atoms, the multiprobe STM and AFM, the atomic switch, and single-molecule-level chemical control including ultradense molecular data storage and molecular wiring; and his inspiration of an entire generation of researchers who have made their own ground-breaking contributions to nanotechnology.

Friedrich Wilhelm Bessel Research Award

Dr. Ajayan Vinu (MANA Independenet Scientist) won the "Friedrich Wilhelm Bessel Research Award" by the Alexander von Humboldt Foundation, Germany. The ceremony was held in Germany in March 2011. The award has been granted to Dr. Ajayan Vinu in recognition of his outstanding research accomplishments in the field of nanoporous materials. This honor will allow him to collaborate with the German scientists from Max Planck Institute on the fabrication of nanomaterials for the production of clean energy and the capture and conversion of CO_2 molecules.

Nice-Step NISTEP Researcher Award

Dr. Katsuhiko Ariga (MANA Principal Investigator) was selected as a winner of the Nice-Step NISTEP Researcher Award 2010 by the National Institute of Science and Technology Policy (NISTEP), MEXT. The ceremony was held in Japan in January 2011. NISTEP highly appraised Dr. Katsuhiko Ariga's research in supramolecular functional materials which attract world wide attention.

A list of Commendations between Oct 2007 and Dec 2010 can be found in Appendix 8.11.

Appendix 8.11: Commendations

Courtesy of NISTEP, MEXT

Fig. 5-1: Left Side: Dr. Masakazu Aono (MANA Director-General) received the "Feynman Prize in Nanotechnology. The ceremony will be held in USA in 2011. Middle: Dr. Ajayan Vinu (MANA Independenet Scientist) won the "Friedrich Wilhelm Bessel Research Award". The photo shows Dr. Ajayan Vinu together with Prof. Helmut Schwarz, President of the Alexander von Humboldt Foundation, at the ceremony in Germany in March 2011. Right Side: Dr. Katsuhiko Ariga (MANA Principal Investigator) was selected as a winner of the "Nice-Step Scientist (NISTEP) Award". The photo shows Dr. Katsuhiko Ariga together with Dr. Terutaka Kuwahara, head of the National Institute of Science and Technology Policy (NISTEP), at the ceremony in Japan in January 2011.

6. Global Network

6.1 MANA Satellites

MANA has established satellite labs in other research institutions to which external Principal Investigators are affiliated. As of January 1, 2011, there are six MANA satellites, 2 in Japan, 2 in USA and 2 in Europe (see Fig. 6-1). These satellites are involved in research in each of the fields at MANA and serve as venues for training MANA's young researchers. The MANA satellite at Hokkaido University, Japan, was closed when Prof. Kohei Uosaki (MANA Principal Investigator) moved from Hokkaido to MANA in Tsukuba at the beginning of April 2010.

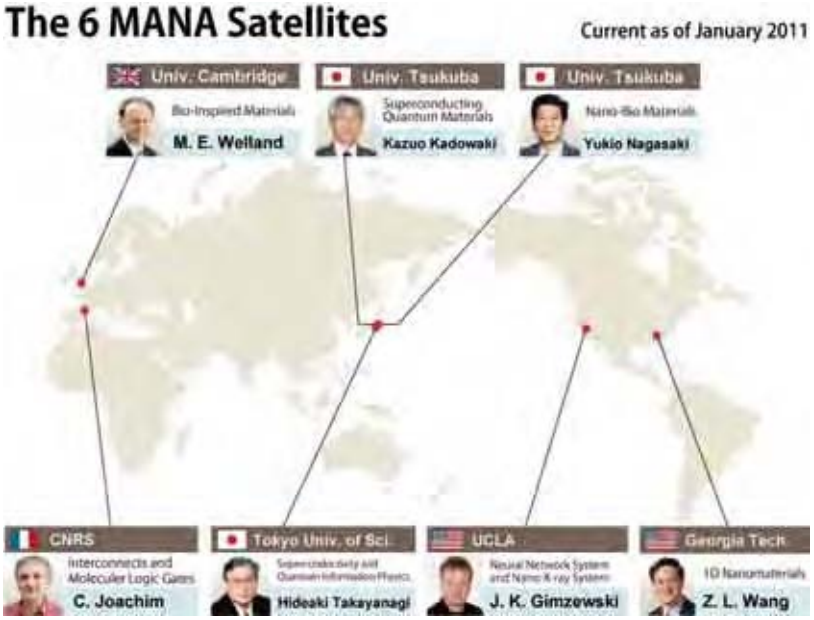


Fig. 6-1: The six MANA Satellites.

1. University of Tsukuba (Japan)

Located adjacent to NIMS, this satellite engages in frequent mutual exchange with MANA in conducting research, joint intake of American students and joint seminars. The largest NIMS Graduate School is at the University of Tsukuba, where MANA has 10 faculty members and 13 PhD students who engage in research activities at MANA. Prof. Keiichi Tomishige (previously MANA Satellite PI) left University of Tsukuba by end of March 2010.

● **Prof. Kazuo Kadowaki**, *Graduate School of Pure and Applied Sciences*

In the Nano-System Field, Prof. Kadowaki conducts cutting-edge research on quantum nanoscience using high temperature superconductors. Together with two researchers and five graduate students, he is working on the following topics: elucidation of the mechanism of terahertz radiation after the discovery in the nano-fabricated mesa structures of high temperature superconductor $Bi_2Sr_2CaCu_2O_{8+\delta}$ single crystals, basic research on the topological insulators and the detailed electronic states of superconductors with multi-degree of freedoms. He also conducts joint research with Dr. Xiao Hu (MANA Principal Investigators).

● **Prof. Yasuo Nagasaki**, *Graduate School of Pure and Applied Sciences*

In the Nano-Bio Field, Prof. Nagasaki researches new nano-bio imaging and materials design for nanodiagnoses and treatment and evaluates of the attributes of these materials with the aim of creating novel biotools. Professor Nagasaki engages in research with a group that includes three postdoctoral researchers, as well as two lecturers, 11 PhD students and 17 Master's students from the University of Tsukuba satellite. He also conducts joint research with Dr. Jun Nakanishi (MANA Independent Scientist).

2. Tokyo University of Science (Japan)

● **Prof. Hideaki Takayanagi**, *Department of Applied Physics*

Prof. Hideaki Takayanagi is based in Tsukuba and has offices and research space at MANA. Together with three MANA Research Associates (postdoctoral) and two assistant professors and graduate students from the Tokyo University of Science, he has developed the nano-SQUID, or nano superconducting quantum interference device, and conducts research in the Nano-Systems field on new superconducting devices. He also conducts joint research on quantum transport phenomena with a NIMS group.

3. UCLA (United States)

● **Prof. James K. Gimzewski**, *Director of Nano/Pico Characterization Laboratory*

Prof. James K. Gimzewski conducts research in the Nano-System field on the development of hardware-based, physically intelligent neural networks through a synergy of biological inspiration and advanced solid-state nanoelectronics. Prof. Gimzewski has visited MANA 11 times in 3.5 years, spending a total of 157 days in Japan. He continues joint research on new neurocomputation circuits that use the learning functions of atomic switches. In January 2010, Prof. Gimzewski appeared on the NHK TV program "Proposal for the Future", and his joint research with MANA was featured in the program. UCLA has become a hub for cultivating young researchers, graduate students and young administrators: MANA Research Associates (postdoctoral) were dispatched from October 2008 to March 2009, the Japan-UK-US Nanotechnology Summer School was held in July 2009, and MANA administrative staff was sent as interns from October 2010 to March 2011.

4. Georgia Institute of Technology (United States)

● **Prof. Zhong Lin Wang**, *Director of Center for Nanostructure Characterization*

Prof. Zhong Lin Wang conducts research in the Nano-Materials field on photonic structures provided by nature and nanogenerators for harvesting mechanical energy. There is a rich history of personnel exchange between MANA and GIT. Prof. Wang is the mentor to MANA Independent Scientist Dr. Fukata, who has visited GIT 9 times for a total of 16 weeks. Together they conduct joint research on nano devices and have published their results in ACS Nano. Prof. Wang's postdoctoral student is now Dr. Fukata's MANA Research Associate.

5. CNRS (France)

● **Prof.Christian Joachim**,

Center for Material Elaboration & Structural Studies (CEMES) at CNRS, Toulouse, France

Dr. Christian Joachim conducts research in the Nano-System field on the design, synthesis and atom manipulation of nano-calculating units and the theory of surface electronics interconnections. To date, MANA has held two research exchange events at CEMES. A joint CEMES-MANA workshop was held in October 2009 to promote cooperation between computational scientists and experimental scientists, and a Japan-France workshop on nanomaterials was held in November 2010. One graduate student from CEMES came to MANA between August and October 2009 to conduct research under the supervision of scientists at MANA.

6. University of Cambridge (United Kingdom)

● **Prof. Mark E. Welland**, *Director of Cambridge Nanoscience Centre*

Prof. Mark E. Welland conducts research in the Nano-System field on the application of biologically-inspired materials to highly efficient solar cells. University College London (UCL) was added as a new partner to the Interdisciplinary Research Collaboration (IRC) in Nanotechnology, and University of Cambridge's Prof. Welland is conducting experiments while UCL's Dr. David Bowler is handling calculations. In July 2009, the University of Cambridge held a joint workshop with MANA. Dr. Bowler and Dr. Yoshitaka Tateyama (MANA Independent Scientist) visit each other's labs frequently and engage in research exchange. MANA also serves as a venue for student development. MANA accepted three graduate students from this satellite and plans to hold the Japan-UK-US Nanotechnology Summer School at the University of Cambridge satellite in September 2011.

6.2 Partner Institutions and International Conferences

One of MANA's missions is to become a hub and build network connecting the world's nanotechnology centers. As such, MANA is engaged in joint research and personnel exchange. Furthermore, international research conferences and symposiums are held regularly to bring the world's leading researchers together.

● **Partner Institutions of MANA/NIMS**

1. Indian Institute of Chemical Technology (India)

In April 2009 MANA launched a joint research with the Indian Institute of Chemical Technology (IICT) in Hyderabad, India, to conduct research on nano-porous catalyst materials. Over 2 years MANA collaborated with IICT's outstanding researchers with the aim of speeding up this research. The joint research helped to add the functions into the materials fabricated at MANA, with nano metal and metal oxide particles. Eleven papers have been published from this project. Several visits of scientists from both MANA and IICT were exchanged and an international workshop was conducted at IICT.

2. University of Washington (USA)

In April 2008 NIMS opened up an overseas office at the University of Washington in Seattle, USA. Dr. Kenji Kitamura (MANA Principal Investigator) made this office the base for his activities and conducted joint research to match the needs of US counterparts while promoting exchange among researchers, students and administrative staff. Dr. Kitamura also set up the venture company NIMBUS Technologies LLC (NIMBUS) in June 2009. The aim is to turn PI Kitamura's research output—i.e., his medical infrared light source and terahertz light source—into a business in the United States.

● **Examples of International Conferences and Symposiums 2010-2011**

1st NIMS/MANA-Waseda International Symposium

The 1st joint symposium of NIMS/MANA and Waseda University on "Advanced materials design at nano- and meso-scales towards practical chemical wisdom" was held at Waseda University on January 14, 2010. It was the 4th Global COE International Symposium on "Practical Chemical Wisdom" at Waseda University.

Workshop on "Materials Nanoarchitectonics for Sustainable Development"

The Workshop on "Materials Nanoarchitectonics for Sustainable Development" as a part of the "Invitation Program for Advanced Research Institutions in Japan" sponsored by the Japan Society for the Promotion of Science (JSPS), was held in Gora, Hakone, Japan, on March 24-26, 2010. The participants, consisting of 13 invited guests from non-Asian countries (excellent senior scientists and young researchers) and 18 mostly young scientists from MANA/NIMS, gathered at a famous hot-spring resort near Tokyo to have fruitful discussions in a unique international atmosphere.

IBM-NIMS symposium

The joint IBM and NIMS/MANA symposium on "Characterization and manipulation at the atomic scale" was held at Epochal Tsukuba on June 14-15, 2010 (see Fig. 6-2). The speakers of this symposium include world-leading researchers in scanning tunneling microscopy, atomic force microscopy and scanning transmission electron microscopy.

2nd NIMS/MANA-Waseda International Symposium

The 2nd joint symposium of NIMS/MANA and Waseda University was held at NIMS on December 1, 2010 (see Fig. 6-2). The Sessions had eight oral presentations by the researchers from NIMS/MANA and Waseda University and 45 poster presentations from the students and post docs in the field of materials science covering the fundamentals and technological aspects of various advanced materials and their applications.

Workshop on Dirac Electron Systems 2011

The satellite workshop "Dirac Electron Systems 2011" of the workshop "Graphene Workshop in Tsukuba 2011" was held at NIMS Namiki-site on January 19, 2011 with the participation of Prof. Konstantin Novoselov, 2010 Nobel Laureate in Physics. The workshop focused on physical properties of Dirac electron systems in graphene, organic conductors and topological insulators. Also topics of superconductivity and correlation effects in organic materials were included (see Fig. 6-3).

Fig. 6-2: Participants of the joint IBM-NIMS symposium on "characterization and manipulation at the atomic scale" held in Tuskuba on June 14-15, 2010 (left) and of the 2nd joint symposium NIMS/MANA-Waseda held at NIMS on December 1, 2010 (right).

Fig. 6-3: The workshop on "Dirac Electron Systems 2011" was successfully held at NIMS on January 19, 2011. The 2010 Nobel Laureate in Physics Prof. Konstantin Novoselov was invited (left) and Prof. Mildred S. Dresselhaus, MIT (right) gave a special lecture.

6.3 Enhancement of Partnerships with Universities

Since MANA is a part of a public research center and not a university, we strive to collaborate with foreign and international universities with the aim of promoting research exchange and boosting MANA's name recognition in order to scout for talent.

● NIMS Graduate School

NIMS operates the "NIMS Graduate Schools" having concluded agreements with the University of Tsukuba, Hokkaido University and Waseda University, and graduate students are taught advanced research by NIMS researchers on the front-

lines of their fields. As of March 2011, 20 scientists at MANA are teaching in the NIMS Graduate Schools. Students in the NIMS Graduate Schools who possess especially outstanding skills are appointed as Junior Researchers and are paid a salary for their contribution to NIMS research. As of March 2011, there are 31 Junior Researchers working at MANA, of which 28 are foreigners.

Table 6-1: Number of MANA members at the NIMS Graduate Schools

School	No. of Faculties	No. of Students
University of Tsukuba	10	13
Hokkaido University	5	13
Waseda University	5	5

● **University of Tsukuba Graduate School**

In September 2009, the school established a Master's curriculum in which students can take all of their required credits in English. The objective is to attract outstanding foreign students from the Master's program to the NIMS Graduate Schools.

● **International Joint Graduate School**

The International Joint Graduate School is a program in which PhD students from renowned universities around the globe spend several months to one year researching under the supervision of NIMS researchers. By March 2011, MANA has brought in 25 students from 8 different universities (see Fig. 6-4): Moscow State University (Russia), Charles University and the University of Pardubice (Czech Republic), Warsaw University of Technology (Poland), Xian Jiaotong University (China), Yonsei University (Korea), Jawaharlal Nehru Centre for Advanced Scientific Research and Anna University (India).

Fig. 6-4: International Graduate Schools with MANA participation.

● **Internship Program**

NIMS established an internship system to proactively accept students from universities throughout Japan and the world which have not concluded agreements with NIMS and provide them with opportunities to partake in materials and nanotechnology research. By March 2011 MANA has accepted 89 interns, of which 80 have been foreigners. MANA has welcomed 11 US students from the NSF's National Nanotechnology Infrastructure Network (NNIN) Research Experience for Undergraduates (REU) Program.

7. Enhancement of National and International Recognition

7.1 MANA International Symposium

Once per year, MANA hosts the MANA International Symposium intended to disseminate research results to a wider audience. In addition to invited presenters from around the globe, all the MANA affiliated scientists also participate in three days of presentations and poster sessions, covering the latest research activities. The MANA International Symposium is growing larger every year. The Third MANA International Symposium was held in March 2010 with a total of 351 participants (Fig. 7-1). The Fourth MANA International Symposium held in March 2011 attracted 410 participants from 29 countries (Figs. 7-2, 7-3, 7-4).

Fig. 7-1: Third MANA International Symposium in March 2010.

Fig. 7-2: Fourth MANA International Symposium in March 2011.

Fig. 7-3: Opening address by NIMS President Dr. Sukekatsu Ushioda (left), Greeting address by WPI Program Director Prof. Toshio Kuroki (middle) and Special Speech by WPI Program Officer Prof. Gunzi Saito (right) at the Fourth MANA International Symposium 2011.

Fig. 7-4: Introduction of MANA by MANA Director-General Prof. Masakazu Aono (left), Keynote Lecture by the 1985 Nobel Laureate in Physics Prof. Klaus von Klitzing (middle) and audience (right) at the Fourth MANA International Symposium 2011.

7.2 International Cooperation

To promote research cooperation exchange with overseas research institutions MANA has sealed a total of 27 Memorandum of Understanding (MOU) Agreements between 2008 and 2010 (see Appendix 8.12 and Fig. 7-5).

Appendix 8.12: International Cooperation

Fig. 7-5: Left side: Signing Ceremony of MANA MOU with University of Erlangen-Nürnberg, Germany, in May 2010. Photo from left to right: Dr. Ajayan Vinu (MANA Scientist), Prof. Dr. Wilhelm Schwieger (University of Erlangen) and Prof. Dr. Martin Hartmann (Erlangen Catalysis Resource Center, ECRC, of University of Erlangen). Right Side: Signing Ceremony of MANA MOU with Fudan University, China, in July 2010. Photo from left to right: Prof. Limin Wu (Dean of Department of Materials Science, Fudan University) and Prof. Yoshio Bando (MANA Chief-Operating Officer).

7.3 MANA Website

The official English MANA website (http://www.nims.go.jp/mana/) was launched in February 2008 and is continuously being improved. It provides an overview of MANA, introduces researchers, research projects and output, and informs about events and recent news. In February 2011 the new Japanese MANA website (http://www.nims.go.jp/mana/jp/index.html) was launched.

7.4 Newsletter

The MANA newsletter named "CONVERGENCE" is published with separate English and Japanese issues three times per year and covers activities and progress of the MANA project. It contains interviews with famous researchers (see Fig. 7-6) and articles about top-ranked institutions in Japan and the world with the aim of allowing even the casual reader to gain an affinity with MANA. In order to boost MANA's global name recognition and contribute to expanding its global networks, approximately 2000 copies of the English and Japanese versions of CONVERGENCE are distributed to domestic and overseas researchers, institutions, government offices and private companies in 105 countries.

Fig. 7-6: First Issues of the MANA newsletter "Convergence".

7.5 Outreach Activities

● **MANA Science Café: "The Melting Pot Club"**

This initiative provides an opportunity for citizens to learn about nanoarchitectonics and participate in an exchange of opinions. MANA researchers introduce certain topics, followed by Q & A sessions and discussions in which two-way communication is given high priority. On October 28, 2010 the 1st MANA Science Cafe "Melting Pot Club" on "What's the nanotechnology?" has been successfully held at Frontier Hotel Okura, Tsukuba. 30 Participants enjoyed the scientific talk by Dr. Masakazu Aono, MANA Director-General and Mr. Tetsuya Itano, media producer, while taking wine and cheese (see Fig. 7-7).

Fig. 7-7: The 1st MANA Science Cafe "Melting Pot Club" on "What's the nanotechnology?" was successfully held at Frontier Hotel Okura in Tsukuba on October 28, 2010.

● **Prof. Rohrer's Science Class**

As a part of outreach activities, MANA hosted "Prof. Rohrer's Science Class 2011" at NIMS Namiki Site on March 5, 2011. Dr. Heinrich Rohrer, 1986 Novel laureate in Physics, gave a lecture entitled "Science, Fascination and Passion" to 80 junior-high school students from nearby Tsukuba to help them to understand the wonders and the fun of science (see Fig. 7-8). In the question and answer session, many questions were asked to Dr. Rohrer about his school days and daily life as well as technical questions about his research.

Fig. 7-8: "Prof. Rohrer's Science Class 2011" was successfully held at NIMS Namiki-site on March 5, 2011.

7.6 Media Coverage

As shown in Appendix 8.13, MANA has been featured in newspaper articles, on television and in international academic journals.

In 2010 the number of press releases about MANA in Japanese newspapers rapidly increased from 37 in 2007, 34 in 2008, 28 in 2009 to 84 in 2010. In addition to the fact that research at MANA is starting to bear fruit, one reason for this is that MANA has setup a support system to encourage foreign researchers to issue press releases.

MANA's researchers have been featured in Japanese television NHK several times. Two recent examples are (see Fig. 7-9):

• MANA's outreach activities were covered in the November 11, 2010, morning broadcast of NHK news' of "Ohayo Nippon (Good Morning Japan)". The program featured the "1st MANA Science Café: Melting Pot Club", which was held on October 28, 2010 (see Section 7.5), as well as the activities that PI Dr. Katsuhiko Ariga undertook in light of the government's project screenings (jigyou-shiwake).

• Two MANA researchers were also featured in an NHK Special program entitled "2011 Can Japan Survive?" that was aired at 21:00 on New Year's Day. Touching on Nobel Prize winner Dr. Hidekazu Negishi's interest in artificial photosynthesis, the program showcased MANA PI Dr. Jinhua Ye's experiments on visible light photocatalysts. The show also reported on MANA's human resources development activities with a feature on MANA Independent Scientist Dr. Yusuke Yamauchi. It broadcast an interview with Dr. Yamauchi, covered his research and showed discussions in the Yamauchi Group and among young researchers.

Appendix 8.13: Media Coverage

Fig. 7-9: MANA's researchers Dr. Katsuhiko Ariga (left), Dr. Linhua Ye (middle) and Dr. Yusuke Yamauchi (right) were featured in Japanese television NHK.

7.7 Visitors at MANA

In 2010, 254 persons from around the world (91 from Europe, 52 from America, 104 from Asia and 7 from other regions) have visited MANA. After the strong increase of visitors to MANA (from 133 in 2008 to 317 in 2009), the interest in MANA remained at a high level. Prominent MANA visitors in clued world-top caliber researchers (for example Prof. John A. Kilner, Former Dean of the Royal School of Mines, University College of London), officials from Japanese and foreign governments (see Figs. 7-10, 7-11) and top-ranked representatives from international companies (for example Dr. Matthias Kaiserswerth, Director IBM Research Rueschlikon, Switzerland).

Appendix 8.14: Visitors at MANA

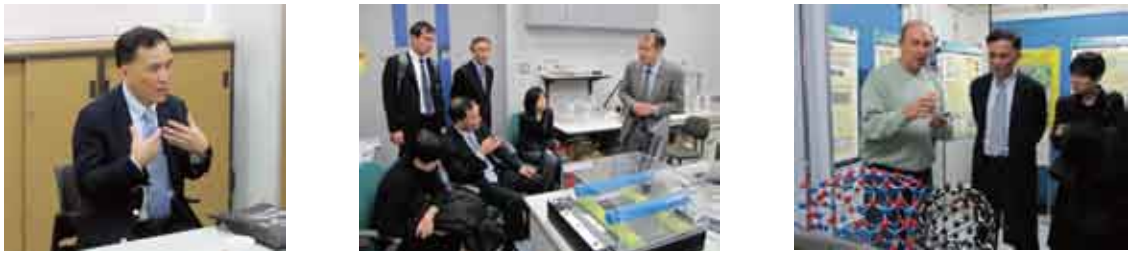


Fig. 7-10: MANA Visit of Mr. Lim Chuan Poh, Chairman of Agency for Science, Technology and Research (A*STAR), Singapore, on December 15, 2010. Mr. Lim is given explanations about the outline of MANA (left) and about research activities by MANA PIs Dr. Tsuyoshi Hasegawa (middle) and Dr. Dmitri Golberg (right).



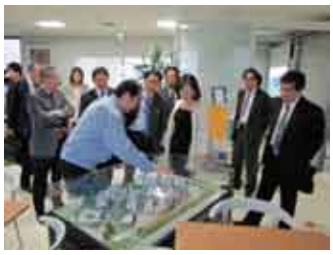



Fig. 7-11: Left side: Ms. Kumiko Hayashi, Parliamentary Secretary for Education, Culture, Sports, Science and Technology, MEXT, visited MANA on December 9, 2010. Middle: MANA Visit of Mr. Yoichiro Genba, Minister of State for Science and Technology Policy, on January 2011. Right side: Dr. H.E. Virachai Virameteekul, Minister of Science and Technology, Thailand, visited MANA on February 18, 2011.

7.8 MANA History

The MANA History between September 2007 and March 2011 can be found in Appendix 8.15.

Appendix 8.15: MANA History

Appendix 8.1: MANA Top Management

Sukekatsu USHIODA
NIMS President
MANA Chief Project Officer

Masakazu AONO
MANA Director-General

Yoshio BANDO
MANA Chief Operating Officer

Takahiro FUJITA
MANA Administrative Director

Appendix 8.2: MANA Research Staff

MANA Principal Investigators (28):

Current as of January 1, 2011

Nano-Materials Field (9)

Coordinator

Takayoshi SASAKI
NIMS

Katsuhiko ARIGA
NIMS

Yoshio BANDO
NIMS

Dmitri GOLBERG
NIMS

Kazuhiro HONO
NIMS

Kenji KITAMURA
NIMS

Naoki OHASHI
NIMS

Yoshio SAKKA
NIMS

Zhong Lin WANG
Georgia Tech (Satellite)

Nano-System Field (11)

Coordinator

Masakazu AONO
NIMS

Daisuke FUJITA
NIMS

James K. GIMZEWSKI
UCLA (Satellite)

Tsuyoshi HASEGAWA
NIMS

Xiao HU
NIMS

Christian JOACHIM
CNRS (Satellite)

Kazuo KADOWAKI
Univ. Tsukuba (Satellite)

Tomonobu NAKAYAMA
NIMS

Hideaki TAKAYANAGI
Tokyo Univ. Sci. (Satellite)

Kazuhito TSUKAGOSHI
NIMS

Mark WELLAND
Univ. Cambridge (Satellite)

Nano-Green Field (6)

Coordinator

Kohei UOSAKI
Hokkaido Univ. (Satellite)

Liyuan HAN
NIMS

Kazunori TAKADA
NIMS

Enrico TRAVERSA
NIMS

Omar YAGHI
UCLA

Jinhua YE
NIMS

Nano-Bio Field (2)

Coordinator

Takao AOYAGI
NIMS

Yukio NAGASAKI
Univ. Tsukuba (Satellite)

MANA Scientists (45):

Current as of January 1, 2011

Nano-Materials Field (10)


Yasuo EBINA


Jonathan HILL


Naoyuki KAWAMOTO


Renzhi MA


Masanori MITOME


Takao MORI


Minoru OSADA


Tadashi OZAWA


Ryutaro SOUDA


Chunyi ZHI

Nano-Systems Field (11)


Hideo ARAKAWA


Masanori KOHNO


Osamu KUBO


Takeo MINARI


Katsumi NAGAOKA


Yuji OKAWA


Makoto SAKURAI


Yoshitaka SHINGAYA


Kazuya TERABE


Tohru TSURUOKA


Takashi UCHIHASHI

Nano-Green Field (10)


Emiliana FABBRI


Ashraful ISLAM


Tamaki NAGANUMA


Hidenori NOGUCHI


Tsuyoshi OHNISHI


Daniele PERGOLESI


Norifusa SATOH


Kentaro TASHIRO


Satoshi TOMINAKA


Masatoshi YANAGIDA

Nano-Bio Field (14)


Guoping CHEN


Mitsuhiro EBARA


Giancarlo FORTE


Sachiko HIROMOTO


Chiho KATAOKA


Kohsaku KAWAKAMI


Naoki KAWAZOE


Masanori KIKCHI


Norio MARUYAMA


Yasushi SUETSUGU


Tetsushi TAGUCHI


Akiyoshi TANIGUCHI


Akiko YAMAMOTO


Tomohiko YAMAZAKI

MANA Independent Scientists (14):

Current as of January 1, 2011

MANA Independent Scientists

Ryuichi ARAFUNE | Alexei A. BELIK | Naoki FUKATA | Masayoshi HIGUCHI | Satoshi MORIYAMA | Tadaaki NAGAO | Jun NAKANISHI

Yoshitaka TATEYAMA | Shunsuke TSUDA | Lionel VAYSSIERES | Ajayan VINU | Katsunori WAKABAYASHI | Yusuke YAMAUCHI | Chiaki YOSHIKAWA

ICYS-MANA Researchers (15):

Current as of January 1, 2011

ICYS-MANA Researchers

Xiaosheng FANG | Ujjal K. GAUTAM | Fatin HAJJAJ | Ryoma HAYAKAWA | Masataka IMURA | Tatsuo SHIBATA | Lok Kumar SHRESTHA

Pavuluri SRINIVASU | Yoshihiro TSUJIMOTO | Hisanori UEKI | Jung-Sub WI | Jesse WILLIAMS | Genki YOSHIKAWA | Tianyou ZHAI

Yuanjian ZHANG

MANA Research Associates (61):

Current as of January 1, 2011

Nano-Materials Field (25)

Anasuya BANDYOPADHYAY
India

Rajashree CHAKRAVARTI
India

Dattatray Sadashiv DHAWALE
India

Weihua DI
China

Fengxia GENG
China

Yanfen GUO
China

Chunfeng HU
China

Mamiko KAWAKITA
Japan

Venkata KRISHNAN
India

Jan LABUTA
Czech

Baoe LI
China

Jianyong LI
China

Liang LI
China

Jing LIN
China

Chamini L. MENDIS
Australia

Ying SUN
China

Norihiro SUZUKI
Japan

Daiming TANG
China

Mingsheng WANG
China

Xianlong WEI
China

Wei YI
China

Haitao ZHANG
China

Li ZHANG
China

Shoubao ZHANG
China

Xiaomei ZHANG
China

Nano-Bio Field (3)

John M. HOFFMAN
USA

Shingo KANEKO
Japan

Ewelina ZAWADZAK
Poland

Nano-System Field (19)


Jianhua
GAO
China


Hongxuan
GUO
China


Gui
HAN
China


Takami
HINO
Japan


Shujun
HU
China


Sumi
KIM
China


Akichika
KUMATANI
Japan


Songlin
LI
China


Shizeng
LIN
China


Chuan
LIU
China


Kewei
LIU
China


Puneet
MISHRA
India


Saumya Ranyan
MOHAPATRA
India


Alpana
NAYAK
India


Kohei
TSUMURA
Japan


Zhi
WANG
China


Jianxun
XU
China


Shin
YAGINUMA
Japan


Rui
YANG
China

Nano-Green Field (14)


Seden
BEYHAN
Turkey


Lei
BI
China


Yingpu
BI
China


Saim
EMIN
Bulgaria


Alejandro
FRACAROLI
Argentina


Taeri
KWON
Korea


Corrado
MANDOLI
Italy


Surya Prakash
SINGH
India


Masato
SUMITA
Japan


Hua
TONG
China


Pothiappan
VAIRAPRAKASH
India


Jiahui
XU
China


Qin
XU
China


Shufang
ZHANG
China

Appendix 8.3: MANA Advisors

Advisors such as Nobel Prize Winners and world prominent researchers, provide their experience and guide MANA researchers and scientists.

MANA Advisors (5):

Current as of January 1, 2011

Prof. Heinrich Rohrer
1986 Nobel Prize Winner in Physics
Switzerland

Prof. Sir Harry Kroto
1996 Nobel Prize Winner in Chemistry
Florida State University
USA

Prof. C.N.R. Rao
Honorary President of the
Jawaharlal Nehru Centre
for Advanced Scientific Research
India

Prof. Galen D. Stucky
University of California
Santa Barbara
USA

Prof. Teruo Kishi
Former President of NIMS
Japan

Appendix 8.4: MANA Evaluation Committee

Evaluation Committee members provide us their critical comments and expert recommendations on the operation and research strategy of the MANA project.

MANA Evaluation Committee members (10):

Current as of January 1, 2011

Chair

Anthony K. Cheetham
Professor
University of Cambridge,
UK

Takuzo Aida
Professor
University of Tokyo,
Japan

Morinobu Endo
Professor
Shinshu University,
Japan

Horst Hahn
Professor
Forschungszentrum Karlsruhe,
Germany

Kazuhito Hashimoto
Professor
University of Tokyo,
Japan

Yoshio Nishi
Professor
Stanford University,
USA

Manfred Rühle
Professor
Max Planck Institute,
Germany

Rodney S. Ruoff
Professor
The University of Texas,
USA

Louis Schlapbach
Professor
Former Director of EMPA
Switzerland

Kazunori Tanaka
Principal Fellow, JST
Center for Research and
Development Strategy
Japan

Appendix 8.5: MANA Seminars

List of MANA Seminars 2010:

Date (2010)	Speaker	Title
Jan 13	**Prof. Galen Stucky** Chemistry & Biochemistry Materials, UC Santa Barbara, USA	Systems and Interfaces for Controlling Bioprocesses: An Example
Jan 15	**Dr. Davide Uglietti** ICYS-Sengen Researcher	Development of high field insert coils using coated conductors
	Dr. Yuanjian Zhang ICYS-MANA Researcher	Functional Carbon-Rich Materials for Sustainable Society
Jan 20	**Dr. Laurence Eaves** School of Physics & Astronomy, University of Nottingham, UK	Novel applications of high magnetic fields: using the Lorentz force to image electronic wave functions in semiconducting quantum dots and to study the dynamics of spinning and levitating water droplets
	Dr. Robin J. Nicholas Physics Department Oxford University, UK	Graphene and carbon nanotubes – the new world of carbon based electronic materials
Jan 22	**Dr. Julia Weertman** Dept. of Materials Science and Engineering, Northwestern University, USA	Detwining and Crack Initiation Produced by Deformation in Multilayer Copper/Copper Samples with Nanoscale Twinning
	Dr. Johannes Weertman Dept. of Materials Science and Engineering, Northwestern University, USA	Revisiting the Uniformly Moving Dislocation of Arbitrary Velocity
Jan 22	**Prof. Harry Tuller** Department of Materials Science and Engineering, Massachusetts Institute of Technology, USA	Electroceramics – Strategic Materials in the Quest to Solve the Energy Crisis
	Dr. Giulia Tomba Institute of Industrial Science (IIS), The University of Tokyo, Japan	Biological recognition processes on a metallic surface: how dipeptides choose and adapt to their partners
Jan 27	**Prof. Andrew Briggs** University of Oxford, Department of Materials, UK	How to store information in collective spin states
	Dr. Kathrin Dörr Leibniz Institute for Solid State and Materials Research Dresden (IFW) Dresden, Germany	Explore strain-coupled two-phase multiferroics using piezoelectric substrates
Jan 29	**Dr. Katsunori Wakabayashi** MANA Independent Scientist	Peculiar low-energy physical properties of nanographenes
	Prof. Chia-Wen Wu Dept. of Chemical Engineering, National Taiwan University, Taiwan	Orientational Control and Applications of 2D Hexagonal Mesoporous Thin Films and Nanoparticles
Feb 1	**Dr. Peng Wang** Research Fellow, Dept. of Materials, University of Oxford, UK	Energy Filtered Scanning Confocal Electron Microscopy
Feb 4	**Prof. Tien-Yau Luh** National Taiwan University, Taiwan	Polymeric Ladder phanes

Date (2010)	Speaker	Title
Feb 5	**Prof. Yung-mau Nie** Dept. of Applied Materials & Optoelectronic Engineering, National Chi Nan Univ., Taiwan	Formulating Half-Metallic Anti-ferromagnetism as Doped Perovskites
Feb 16	**Prof. Katsuyoshi Kobayashi** Department of Physics, Ochanomizu University, Japan	Electronic States of Ordered Stacking Faults in Nanostructures
Feb 19	**Prof. Tom Wu** School of Physical & Mathematical Sciences, Nanyang Technological University (NTU), Singapore	Oxide Nanomaterials: Novel Synthesis and Structure/Property Correlation
	Dr. James Owen Department of Condensed Matter Physics, University of Geneva, Switzerland	Bi-nanowire templates on Si(001) for single atom wire growth
Feb 26	**Prof. Patricia Campana** University of Sao Paulo, Brazil	Conformational studies of some proteins and peptides by steady-state fluorescence and circular dichroism spectroscopies
	Prof. Daniel Zanetti de Florio Universidade Federal do ABC, Brazil	Direct Ethanol Solid Oxide Fuel Cell Research at UFABC
Mar 2	**Prof. Horst Hahn** Karlsruhe Institute of Technology, Institute for Nanotechnology, Germany	Electronically tuneable nanostructures
Mar 8	**Prof. Alex Jen** Department of Materials Science & Engineering and Department of Chemistry, University of Washington, USA	Self-Assembly and Interface Engineering of Organic Functional Materials for Photonic and Opto-electronic Applications
Mar 10	**Dr. Christian Rentenberger** Faculty of Physics, University of Vienna, Austria	Nanocrystalline metals and intermetallic alloys studies by TEM
Mar 11	**Prof. Annabella Selloni** Princeton University, USA	Hydrogen production by a bio-inspired model catalyst/electrode system
	Prof. Nicola Marzari University of Oxford, UK	Transport, heat, and anharmonic interactions
Mar 12	**Dr. Antonio Torralba** ICYS-Sengen Researcher	Towards electronic charge density calculations of complete biomolecules in explicit solvent using linear scaling DFT
	Dr. Jun Chen ICYS-MANA Researcher	EBIC and CL Studies of Grain Boundaries in Multicrystalline Si
Mar 18	**Prof. Po-Wen Chiu** Department of Electrical Engineering, National Tsing Hua University, Taiwan	Graphene: from synthesis to characterization and controllable doping
Mar 19	**Dr. Hong-Tao Sun** ICYS-Sengen Researcher	Bismuth doped near-infrared emitting Nanoparticle
	Dr. Michael Lee ICYS-MANA Researcher	Nanoscale Order by Chemical Manipulation on a Visibly Rough Surface
Apr 2	**Dr. Ayako Hashimoto** ICYS-Sengen Researcher	3D analysis of catalytic nanoparticles on support materials – New 3D imaging techniques by electron microscopy
	Dr. Genki Yoshikawa ICYS-MANA Researcher	Finite Element Analyses of Cantilever Arrary Sensors

Date (2010)	Speaker	Title
Apr 9	**Prof. Stefan Goedecker** Department of Physics and Astronomy, University of Basel, Switzerland	Density functional based global geometry optimization and their application to clusters with cage-like structure
Apr 13	**Prof. Federico Rosei** University of Quebec, Canada	Exploring Molecular Assembly at Surfaces
Apr 16	**Dr. Canhua Liu** ICYS-MANA Researcher	Zero bias anomaly in tunneling resistance observed on indium atomic layer fabricated on Si(111) surface
	Dr. Rajanikanth Ammanabrolu ICYS-Sengen Researcher	Search of Half-metallic Heusler Alloys by Point Contact Andreev Reflection
Apr 23	**Dr. Lev Bulaevskii** Los Alamos National Laboratory, USA	Vortex induced dissipation in narrow current-biased thin-film superconducting strips
Apr 28	**Prof. Deli Wang** Department of Electrical & Computer Engineering, University of California San Diego, USA	Nanowires for optoelectronics and renewable energy
May 14	**Dr. Sharali Malik** Institute of Nanotechnology, Karlsruhe Institute of Technology, Germany	A Short History of Graphene
	Prof. Annie K. Powell Institute of Inorganic Chemistry, Karlsruhe Institute of Technology, Germany	Coordination Chemistry Approaches to Nanostructured Materials
May 21	**Dr. Jesse Williams** ICYS-MANA Researcher	Measuring ZnO c-Axis Polarity With X-ray Photoelectron Diffraction
	Prof. Jian Ping Gong Laboratory of Soft & Wet Matter (LSW), Faculty of Advanced Life Science, Hokkaido University, Japan	Hydrogel: A Soft and Wet Material as Load-Bearing Bio-tissues
May 26	**Prof. Bart Jan Ravoo** Organic Chemistry Institute, Münster University, Germany	Cyclodextrin Vesicles: Supramolecular Chemistry of Dynamic Interfaces
May 28	**Prof. Hans-Conrad zur Loye** Dept of Chemistry & Biochemistry, The University of South Carolina, USA	Crystal Growth of Complex Oxides: Effective Strategies for the Discovery of New Phases
	Dr. Petre Badica National Institute of Materials Physics (INCDFM), Romania	The unconventional "beautiful" approaches of processing and characterization of selected materials
Jun 4	**Prof. Jun Nogami** Materials Science and Engineering, University of Toronto, Canada	Making Nanoscale Metal Features on Atomically Clean Silicon Surfaces with a Stencil
	Dr. Yasuhiro Shirai ICYS-MANA Researcher	Synthesis of conductive polymers using porous alumina template
	Dr. Davide Uglietti ICYS-Sengen Researcher	Progress on development of high filed superconducting magnets

Date (2010)	Speaker	Title
Jun 11	**Dr. Jun Nakanishi** MANA Independent Scientist	Understanding of photocleavage reaction at solid surface and development of new biointerfaces
	Dr. Pavululi Srinivasu ICYS-MANA Researcher	Novel Three-dimensional Functional Nanoporous Materials for Efficient Drug Delivery Systems and Bone Tissue Engineering
	Dr. Satoshi Moriyama MANA Independent Scientist	Fusion of nano-fabrication and organic synthesis toward the control of nanostructures and transport properties in graphene
Jun 11	**Dr. Daniele Pergolesi** MANA Scientist	Non-Volatile Memory FET based on Proton Conducting Oxide
	Dr. Genki Yoshsikawa ICYS-MANA Researcher	Development of Nano-Sieve Cantilever Array Sensors
	Dr. Naoki Fukata MANA Independent Scientist	Highly-functionalized Si-related energy conversion materials fabricated by self-organization processes
Jun 17	**Prof. Charles S. Fadley** Department of Physics, University of California Davis, USA	Some New Directions in Photoemission: Characterization of Buried Layers, Interfaces, and Complex Bulk Materials with Standing Waves and Hard X-Rays
Jun 18	**Dr. Ujjal Gautam** ICYS-MANA Researcher	CNT encapsulated superconducting In nanowires and hetero-structures: synthesis, structure and metastability
	Dr. Lok Kumar Shrestha ICYS-MANA Researcher	Lipophilic Tail Architecture and Solvent Engineering for the Structure Control of Reverse Micelles
Jun 24	**Prof. Laure Bourgeois** Monash Centre for Electron Microscopy, Department of Materials, Engineering, Monash University, Australia	Probing precipitate solid-state nucleation mechanisms in light metallic alloys using transmission electron microscopy
	Prof. Gianfranco Pacchioni Director of the Department of Materials Science, University of Milano Bicocca, Italy	UV and visible photo activity of titania: nature of reduced and doped TiO_2 from first principle calculations
Jul 2	**Dr. Hiroyuki Takeda** ICYS-Sengen Researcher	Exact simulations of quantum dot population switching in photonic crystals
	Dr. Liang Li Advanced Functional Materials Laboratory, East China Univ. of Science & Technology, Shanghai, China	Low Power Consumption MEMS LEL Sensor Based on Mesoporous Structure and Nano-catalyst
Jul 5	**Prof. Masahiro Yoshimura** Emeritus Professor, Tokyo Institute of Technology and National Cheng Kung University, Taiwan	Soft Processing for Ceramics: Direct Fabrication of Nano-Structured Ceramic Films and Patterns from Solution without Firing of Powders/Particles
Jul 7	**Prof. Raja Ram Pradhananga** Central Department of Chemistry, Tribhuvan University, Nepal	Highly sensitive low cost silver sulphide-based ion sensors for analytical studies
Jul 8	**Dr. Carlo Taliani** Institute for Nanostructured Materials-Bologna, CNR, Italy	Pulsed Plasma Deposition: a new enabling technology for novel thin film fabrication
Jul 9	**Prof. Hiroshi Matsui** Department of Chemistry, City University of New York-Hunter College, USA	Peptide Nanotechnology for Device Building Blocks, 3D Assembly, and Sensing
	Prof. Ayyappanpillai Ajayaghosh National Institute for Interdisciplinary Science and Technology, India	Properties of Self-assembled of Molecular Wires

Date (2010)	Speaker	Title
Jul 16	**Dr. Ryuichi Arafune** MANA Independent Scientist	Inelastic photoemission spectroscopy: Another application of laser-excited photoemission process
	Dr. Masataka Imura ICYS-MANA Researcher	Development of AlN / Diamond Heterostructure Field-Effect Transistor
Jul 23	**Prof. Limin Wu** Department of Materials Science, Fudan University, China	Novel Preparation Methods of Nanocomposite Spheres and Photonic Crystal Materials
	Prof. Song Jin Department of Chemistry, University of Wisconsin-Madison, USA	Dislocation-Driven Nanomaterial Growth: Nanowire Trees, Nanotubes, and Beyond
Jul 23	**Prof. Zhongfang Chen** Department of Chemistry, University of Puerto Rico, USA	Intriguing Properties and Promising Applications of Nanographenes - From Carbon Nanoribbons to Their Inorganic Cousins
Jul 26	**Prof. Ganpati Ramanath** Materials Science and Engineering, Rensselaer Polytechnic Institute, USA	Molecularly-directed sculpture and tailoring of nanostructures, assemblies and interfaces
Jul 28	**Prof. Emerson R. Camargo** UFSCar-Federal University of Sao Carlos, Brazil	Using colloidal intermediates to obtain complex materials
	Prof. Lei Zhou Physics Department, Fudan University, China	Electromagnetic metamaterials: Physics and Applications
Jul 30	**Prof. Li Niu** Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, China	Chemically Converted Graphene: Functionalization and Nanocomposites
	Prof. Yung-mau Nie Department of Applied Materials and Optoelectronic Engineering, National Chi Nan University, Taiwan	First-principles Molecular-Dynamic simulation on the effect of Pt addition to thermal barrier coatings
Aug 4	**Prof. Petra Hellwig** University of Strasbourg, France	What can Mid and Far infrared spectroscopy tell us about the reaction mechanism of proteins?
	Prof. Alexandra Navrotsky University of California at Davis, USA	Calorimetric Studies of the Energetics of Nanomaterials and their Surfaces and Interfaces
Aug 6	**Dr. Anna Demming** Editor Nanotechnology, Institute of Physics Publishing, Bristol, UK	IOP Publishing: Maximising the impact of your work
	Dr. Marcelo Jaime National High Magnetic Field Laboratory, Los Alamos National Laboratory, USA	Testing Exotic States of Matter in Extreme Magnetic Fields
Aug 25	**Prof. Zhengdong Cheng** Artie McFerrin Department of Chemical Engineering Texas A&M University, USA	Self-assembly of Discotic Colloids

Date (2010)	Speaker	Title
Sep 3	**Dr. Michael Lee** ICYS-MANA Researcher	Monolayer Mechanisms and ICYS in Review
	Prof. Jaroslav V. Burda Department of Chemical Physics and Optics, Charles University, Czech Republic	The Thermodynamic Description of the Reactions of the Organometallic Complexes
Sep 10	**Prof. Volodymyr I. Chegel** Institute of Semiconductor Physics, National Academy of Science of Ukraine	Molecular plasmonics: current state and future trends
Sep 17	**Dr. Tatsuo Shibata** ICYS-MANA Researcher	Design and control of crystallographic orientation of functional oxide films by nanosheet seed layer method
	Dr. Conxita Solans Institute of Advanced Chemistry of Catalonia, CSIC, Spain	Nanomaterial Synthesis by Surfactant Self-assembly
Sep 21	**Prof. Dr. Jochen Wosnitza** Hochfeld-Magnetlabor Dresden (HLD), Forschungszentrum Dresden-Rossendorf, Germany	The Dresden Magnetic Field Laboratory: Recent Research Results
Oct 1	**Dr. Yoshihiro Tsujimoto** ICYS-MANA Researcher	Low-dimensional magnets synthesized by topotactic reaction: order or disorder
Oct 1	**Dr. Xiaodong Pi** Associate Professor Zhejiang University, China	Freestanding silicon nanocrystals:gas-phase synthesis and photovoltaic application
Oct 5	**Prof. Otto Glatter** Karl-Franzens University, Austria	Hierarchically Organized Nanostructured Lipid Based Materials
Oct 6	**Prof. Guanghai Li** Institute of Solid State Physics, Chinese Academy of Sciences, China	Growth Mechanism of Electrodeposited Nanowires
Oct 8	**Group of Dr. Tsuyoshi Hasegawa** MANA, NIMS	Atomic-movement-controlled conductive switching
Oct 13	**Dr. Yoshihiro Asai** Nanosystem Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan	Non-equilibrium theory of transport properties and energy conversion processes across nanostructured junctions
Oct 15	**Dr. Ryoma Hayakawa** ICYS-MANA Researcher	Single-Electron Tunneling Behaviors of Molecular Coulomb Islands Embedded in Metal-Insulator-Semiconductor Structure
	Dr. Mingsheng Xu ICYS-Sengen Researcher	From graphene to nanobiomedicine
Oct 19	**Prof. Hong-Bo Sun** College of Electronic Science and Engineering, Jilin University, China	Designable nanofabrication enabled by femtosecond lasers
	Prof. N.F. Pedersen Department of Mathematics, DTU, Technical University of Denmark, Denmark	THz radiation due to fluxon dynamics in stacked Josephson junctions

Date (2010)	Speaker	Title
Oct 21	**Dr. Bernard Chenevier** Director of LMGP, MINATEC, Grenoble, France	Overview of research activities at LMGP laboratory
	Dr. Marc Audier LMGP, MINATEC, Grenoble, France	Fabrication of 3D periodic architectures using 3D interference field of UV laser light
Oct 28	**Dr. Reiko Oda** Université de Bordeaux I-CNRS, France	Bio-inspired nanostructures based on lipidic molecules; the effect of ionic interaction
Oct 29	**Group of Dr. Kohei Uosaki** MANA, NIMS	Construction of Ordered Atomic/molecular Layers at Solid/liquid Interfaces as New Functionality Materials
Nov 4	**Dr. Tim Dubrovsky** Biological Research and Development, BD Biosciences, USA	Biocompatible Surface Modification for Quantum Dots
	Dr. Antonello Tebano Department of Ingegneria Meccanica at the Engineering, University of Rome Tor Vergata, Italy	Layer-by-layer Pulsed Laser Deposition: a tool for materials engineering
Nov 5	**Dr. Yuanjian Zhang** ICYS-MANA Researcher	Enhancing Electrical Conductivity and Photocurrent Generation of Polymeric Carbon Nitride by Doping of Phosphorus
	Prof. Ting Yu School of Physical & Mathematical Sciences, Nanyang Technological University, Singapore	Raman Spectroscopy and Imaging of Graphene
Nov 8	**Prof. Françoise Winnik** Université de Montréal, Canada	Directed polymer self-assembly as a driving force in the nano-biosciences
Nov 11	**Prof. Dr. Nicola Pinna** Department of Chemistry and CICECO, University of Aveiro Campus, Universitario de Santiago, Portugal	Non-aqueous sol-gel routes to metal oxide nanostructures
Nov 12	**Dr. Muruganathan Ramanathan** Center for Nanoscale Materials, Argonne National Laboratory, USA	The power of soft material self-assembly and its applications
Nov 17	**Prof. Sudipta Seal** University of Central Florida, USA	Redox Active Nanoscale Cerium oxide for nanobiomedicine
Nov 18	**Prof. Anna Boczkowska** Materials Science and Engineering, Warsaw University of Technology, Poland	Role of the microstructure in property formation of magnetor-heological elastomers
	Prof. Qian Niu Department of Physics, University of Texas, USA	Berry phase effects on charge and spin transport

Date (2010)	Speaker	Title
Nov 19	**Prof. Jianrong Qiu** South China University of Technology, China	New glass for photonic devices
	Dr. Silviu Balaban Forschungszentrum Karlsruhe Institute for Nanotechnology, Germany	Self-assembling Chromophores
	Prof. Peter V. Sushko Royal Society University Research Fellow, Department of Physics & Astronomy, University College London, UK	Models of interface and surface structures of complex oxides with “excess” electrons
Dec 3	**Dr. Yufang Zhu** ICYS-Sengen Researcher	Mesoporous Silica as Potential Carrier to Enhance Drug/DNA Delivery Efficiency
	Dr. Fatin Hajjaj ICYS-MANA Researcher	Smart Magnetic Materials with non-Volatile Memory Effect
Dec 10	**Dr. Sergey Grachev** Surface du Verre et Interfaces, CNRS/Saint-Gobain Unité Mixte de Recherche (UMR 125), France	Interfacial toughness vs. structure of Ag films observed in-situ
	Prof. Dr. Tetsuya Asai Graduate School of Information, Science and Technology, Hokkaido University, Japan	Towards memristor-CMOS-hybrid semiconductor devices for neural networks
Dec 16	**Prof. Lina Ghibelli** Department of Biology, University of Rome "Tor Vergata", Italy	Multiple and diverse effects of carbon nanotubes and cerium oxide nanoparticles on inflammatory competent leukocytes
Dec 17	**Dr. Jung-Sub Wi** ICYS-MANA Researcher	Physical Synthesis of Artificially Designed Plasmonic Nanoparticles
	Dr. Pavuluri Srinivasu ICYS-MANA Researcher	Nanostructured materials templated synthesis of bioceramics
Dec 22	**Prof. Osamu Terasaki** Graduate School of EEWS (WCU), Korea Advanced Institute of Science and Technology, Korea	Structural characterisation of nano-porous materials by diffraction and imaging

Appendix 8.6: Japanese Culture and Language Classes

Schedule of Japanese Culture Classes 2010:

Date	Class Name	Number of Participants
Feb 6	Japanese Communication: Common mistakes by foreigners	10
Feb 19	Edo Komon: Japanese traditional arts & craft	14
Mar 26	Japanese-style Tableware	9
May 28	Karate	20
Jun 11	Origami	21
Jul 30	Yukata Dress	20
Aug 19	Acupuncture	15
Sep 10	Japanese Drums	16
Sep 13	Japanese Drums	16
Oct 29	Tea Ceremony	10
Nov 12	Haiku Poetry	12
Dec 3	Seal Engraving	13

Participants of Japanese Language Classes 2010:

Namiki Site	Number of Participants		
	Jan ~ Mar	May ~ Jul	Sep ~ Dec
Introductory Level		13	11
Beginner Level	6	6	12
Intermediate Level	8		

Sengen Site	Number of Participants		
	Jan ~ Mar	May ~ Jul	Sep ~ Dec
Introductory Level	11	14	13
Beginner Level	6	9	9

Appendix 8.7: Research Papers and Books

List of Research Papers and Books 2010 (authors):

1	C. Abate, V. Esposito, K. Duncan, J.C. Nino, D.M. Gattia, E.D. Wachsman, E. Traversa, *Novel $Y_{2-x}Pr_xRu_2O_7$ (x = 0 - 2) pyrochlore oxides prepared using a soft chemistry route and their electrical properties*, Journal of the American Ceramic Society **93**, 1970 (2010). doi: 10.1111/j.1551-2916.2010.03666.x
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3	J.S. Ahn, M.A. Camaratta, D. Pergolesi, K.T. Lee, H. Yoon, B.W. Lee, D.W. Jung, E. Traversa, E.D. Wachsman, *Development of High Performance Ceria/Bismuth Oxide Bilayered Electrolyte SOFCs for Lower Temperature Operation*, Journal of the Electrochemical Society **157,** B376 (2010). doi: 10.1149/1.3276503
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8	S. Anandan, N. Ohashi, M. Miyauchi, *ZnO-based visible-light photocatalyst Band-gap engineering and multi-electron reduction by co-catalyst*, Applied Catalysis B **100**, 502 (2010). doi: 10.1016/j.apcatb.2010.08.029
9	M. Aono, T. Hasegawa, *The atomic switch*, Proceedings of the IEEE **98**, 2228 (2010). doi: 10.1109/JPROC.2010.2061830
10	K. Ariga, *Super molecular art: Does molecule have an artistic sence?*, Kagaku **80**, 132 (2010), in Japanese. doi: –
11	K. Ariga, *"Hans Kuhn" Attending advanced symposium: From molecular aggregations to life origins*, Kagaku **80**, 347 (2010), in Japanese. doi: –
12	K. Ariga, *Is it possible to make living things from molecules?:Discussion from film origin*, Kagaku **80**, 720 (2010), in Japanese. doi: –
13	K. Ariga, *Technology of surface functionalization design for practical materials*, Vol 1, Chapter 1, Sction 1 in Patterning of two dimensional molecules, Industrial Technology Service Center, 26 (2010), in Japanese. doi: –
14	K. Ariga, M. Aono, *What is Materials Nanoarchitectonics?*, Kagaku **80**, 581 (2010), in Japanese. doi: –
15	K. Ariga, X. Hu, S. Mandal, J.P. Hill, *By what means should nanoscaled materials be constructed: molecule, medium, or human?*, Nanoscale **2**, 198 (2010). doi: 10.1039/b9nr00105k
16	K. Ariga, Q.M. Ji, J.P. Hill, *Enzyme-Encapsulated Layer-by-Layer Assemblies: Current Status and Challenges toward Ultimate Nanodevices*, Advances in Polymer Science **229**, 51 (2010). doi: 10.1007/12_2009_42
17	K. Ariga, Q.M. Ji, J.P. Hill, A. Vinu, *Supramolecular Materials with Inorganic Building Blocks*, Journal of Inorganic and Organometallic Polymers and Materials **20**, 1 (2010). doi: 10.1007/s10904-009-9324-2
18	K. Ariga, M.V. Lee, T. Mori, X.Y. Yu, J.P. Hill, *Two-dimensional nanoarchitectonics based on self-assembly*, Advances in Colloid and Interface Science **154**, 20 (2010). doi: 10.1016/j.cis.2010.01.005
19	K. Ariga, G.J. Richards, J.P. Hill, A. Vinu, T. Mori, *Supramolecular Chemistry at the Mesoscale* in "Supramolecular Chemistry of Organic-Inorganic Hybrid Materials", Editors: Knut Rurack and Ramón Martínez-Máñez; John Wiley & Sons, Inc., Hoboken, 11 (2010). doi: 10.1002/9780470552704.ch2
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600	L. Zhang, Y.K. Takahashi, A. Perumal, K. Hono, *L10-ordered high coercivity (FePt)Ag–C granular thin films for perpendicular recording*, Journal of Magnetism and Magnetic Materials **322**, 2658 (2010). doi: 10.1016/j.jmmm.2010.04.003
601	S. Zhang, K. Kawakami, *One-step Preparation of Chitosan Solid Nanoparticles by Electrospray Deposition*, International Journal of Pharmaceutics **397**, 211 (2010). doi: 10.1016/j.ijpharm.2010.07.007
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List of Publications 2010 (editors):

611	K. Ariga: Issue Editor, Physical Chemistry Chemical Physics, Special Issue "Materials Innovation through Interfacial Physics and Chemistry" (2010).
612	K. Ariga: Issue Editor, Journal of Nanoscience and Nanotechnology, Special Issue "Atomically Controlled Fabrication Technology" (2010).
613	K. Ariga: Issue Editor, Journal of Nanoscience and Nanotechnology, Special Issue "AsiaNano 2010", (2010).
614	C. Bock, J. Li, E. Traversa, editors, *Nanotechnology (General) – 216th ECS Meeting*, ECS Transactions Vol. 25, Issue No. 24, The Electrochemical Society, Pennington, NJ, USA, (2010).
615	C. Bock, E. Traversa, editors, *Nanotechnology (General) – 217th ECS Meeting*, ECS Transactions Vol. 28, Issue No. 7, The Electrochemical Society, Pennington, NJ, USA, (2010).
616	K. Kawakami, Editor, , Recent Progress in Physicochemical Characterization and Formulation Technologies for Poorly Soluble Drugs, CMC Press, Tokyo (2010).
617	K. Kitamura, K. Kim, Li Lu, D. Xue, *Preface*, Materials Research Bulletin **45,** 251 (2010).
618	M. Miyayama, E. Traversa, editors, "Special Issue on Yanagida", *J. Electroceram.*, Vol. 24, Issue No. 2, (2010).

Appendix 8.8: Editorial Activities

Member of Board of Journals (2010):

No.	Name of Member	Name of Journal	Editorial Status
1	Masakazu Aono (MANA Director-General)	ACS Nano ISSN: 1936-0851	Editorial Advisory Board
2	Masakazu Aono (MANA Director-General)	International Journal of Nanoscience ISSN: 0219-581X	Associate Editor
3	Masakazu Aono (MANA Director-General)	Small ISSN: 1613-6810	Editorial Board
4	Yoshio Bando (MANA Chief Operating Officer)	International Journal of Nanotechnology ISSN: 1475-7435	Editorial Board
5	Yoshio Bando (MANA Chief Operating Officer)	Journal of Ceramic Science and Technology ISSN: 2190-9385	Editorial Board
6	Yoshio Bando (MANA Chief Operating Officer)	Journal of Electron Microscopy ISSN: 0022-0744	Editor-in-Chief
7	Yoshio Bando (MANA Chief Operating Officer)	Nanotechnology ISSN: 0957-4484	Editorial Board
8	Yoshio Bando (MANA Chief Operating Officer)	Small ISSN: 1613-6810	Editorial Board
9	Katsuhiko Ariga (MANA Principal Investigator)	ACS Applied Materials & Interfaces ISSN: 1944-8244	Editorial Advisory Board
10	Katsuhiko Ariga (MANA Principal Investigator)	Advanced Science Letters ISSN: 1936-6612	Asian Editor
11	Katsuhiko Ariga (MANA Principal Investigator)	Chemistry Letters ISSN: 0366-7022	Associate Editor
12	Katsuhiko Ariga (MANA Principal Investigator)	Hyomen (in Japanese) ISSN: 0367-648X	Associate Editor
13	Katsuhiko Ariga (MANA Principal Investigator)	Journal of Nanoscience and Nanotechnology ISSN: 1550-7033	Asian Editor
14	Katsuhiko Ariga (MANA Principal Investigator)	Nanoscience and Nanotechnology Letters ISSN: 1941-4900	Asian Editor
15	Katsuhiko Ariga (MANA Principal Investigator)	Physical Chemistry Chemical Physics ISSN: 1463-9076	Associate Editor
16	Katsuhiko Ariga (MANA Principal Investigator)	Science and Technology of Advanced Materials ISSN: 1468-6996	Associate Editor
17	Daisuke Fujita (MANA Principal Investigator)	Journal of the Vacuum Society of Japan ISSN: 1882-2398	Editor-in-Chief
18	Katsuhiro Hono (MANA Principal Investigator)	Acta Materialia ISSN: 1359-6454	Editor
19	Katsuhiro Hono (MANA Principal Investigator)	Scripta Materialia ISSN: 1359-6462	Principal Editor

No.	Name of Member	Name of Journal	Editorial Status
20	Kenji Kitamura (MANA Principal Investigator)	Functional Materials Letters ISSN: 1793-6047	Editorial Board
21	Kenji Kitamura (MANA Principal Investigator)	Materials Research Bulletin ISSN: 0025-5408	Guest Editor
22	Yukio Nagasaki (MANA Principal Investigator)	Acta Biomaterialia ISSN: 1742-7061	Editorial Board
23	Yukio Nagasaki (MANA Principal Investigator)	Biointerphases ISSN: 1559-4106	Co-Editor
24	Yukio Nagasaki (MANA Principal Investigator)	Bulletin of the Chemical Society of Japan ISSN: 0009-2673	Associate Editor
25	Yukio Nagasaki (MANA Principal Investigator)	e-Journal of Soft Materials ISSN: 1349-7308	Associate Editor
26	Yukio Nagasaki (MANA Principal Investigator)	Reactive and Functional Polymers ISSN: 1381-5148	Editorial Board
27	Naoki Ohashi (MANA Principal Investigator)	International Journal of Applied Ceramic Technology ISSN: 1546-542X	Associate Editor
28	Yoshio Sakka (MANA Principal Investigator)	Journal of Ceramic Society of Japan ISSN: 1882-0743	Editor-in-Chief
29	Yoshio Sakka (MANA Principal Investigator)	Journal of the Society of Inorganic Materials ISSN: 1345-3769	Associate Editor
30	Yoshio Sakka (MANA Principal Investigator)	Zairyo no Kagaku to Kogaku (in Japanese) ISSN: 1347-4774	Associate Editor
31	Yoshio Sakka (MANA Principal Investigator)	Materials Transactions ISSN: 1345-9678	Associate Editor
32	Yoshio Sakka (MANA Principal Investigator)	Science and Technology of Advanced Materials ISSN: 1468-6996	Co-Editor
33	Yoshio Sakka (MANA Principal Investigator)	Scripta Materialia ISSN: 1359-6462	Deputy of Principal Editor
34	Enrico Traversa (MANA Principal Investigator)	Cerâmica ISSN: 0366-6913	Editorial Board
35	Enrico Traversa (MANA Principal Investigator)	Journal of Electroceramics ISSN: 1385-3449	Editorial Board
36	Enrico Traversa (MANA Principal Investigator)	Journal of Nanoparticle Research ISSN: 1388-0764	Associate Editor
37	Enrico Traversa (MANA Principal Investigator)	Science and Technology of Advanced Materials ISSN: 1468-6996	Associate Editor
38	Kohei Uosaki (MANA Principal Investigator)	Electrochemistry Communications ISSN: 1388-2481	Editorial Board
39	Mark E. Welland (MANA Principal Investigator)	Nanotechnology ISSN: 0957-4484	Editorial Board

No.	Name of Member	Name of Journal	Editorial Status
40	Tadaaki Nagao (MANA Independent Scientist)	e-Journal of Surface Science and Nanotechnology ISSN: 0000-0957	Editorial Board
41	Tadaaki Nagao (MANA Independent Scientist)	Hyomen Kagaku (in Japanese) ISSN: 0388-5321	Editorial Board
42	Tadaaki Nagao (MANA Independent Scientist)	Radiation Effects and Defects in Solids ISSN: 1042-0150	Associate Editor
43	Jun Nakanishi (MANA Independent Scientist)	Bunseki (in Japanese) ISSN: 0386-2178	Editorial Board
44	Lionel Vayssieres (MANA Independent Scientist)	International Journal of Nanotechnology ISSN: 1475-7435	Editor-in-Chief
45	Ajayan Vinu (MANA Independent Scientist)	Journal of Nanoscience and Nanotechnology ISSN: 1550-7033	Editorial Board
46	Ajayan Vinu (MANA Independent Scientist)	The Open Biomaterials Journal ISSN: 1876-5025	Editorial Advisory Board
47	Ajayan Vinu (MANA Independent Scientist)	The Open Catalysis Journal ISSN: 1876-214X	Editorial Advisory Board
48	Ajayan Vinu (MANA Independent Scientist)	The Open Materials Science Journal ISSN: 1874-088X	Editorial Advisory Board
49	Kohsaku Kawakami (MANA Scientist)	Netsu Sokutei (in Japanese) ISSN: 1884-1899	Editor

Appendix 8.9: Invited Lectures to International Conferences

List of Invited Lectures to International Conferences (2010):

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Jan	International Workshop on Germany-Japan Collaborative Research, Bad Honnef, Germany	Masakazu Aono	Spin-resolved electron transport through magnetic nanostructures studied by a low-temperature multiprobe-STM
2010 Jan	2010 RIKEN Conference on Soft Materials & Interfaces, SPring-8, Harima, Japan	Guoping Chen	Development of Biomimetic Scaffolds for Tissue Engineering
2010 Jan	The 10th International Symposium on Biomimetic Materials and Processing, Nagoya, Japan	Daisuke Fujita	Novel Synthesis and Quantitative Characterization of Graphene
2010 Jan	IEEE International Nano-Electronics Conference (INEC) 2010, Hong Kong, China	Dmitri Golberg	Functional Boron Nitride nanotubes
2010 Jan	International Workshop on Germany-Japan Collaborative Research, Bad Honnef, Germany	Tsuyoshi Hasegawa	Faradaic currents and ion transfer numbers in electrochemical atomic switches
2010 Jan	JST-DFG Workshop on Nanoelectronics, Physikzentrum Bad Honnef, Germany	Tadaaki Nagao	Electromagnetic Wave Controlling by Atomic-Scale and Nanoscale Plasmonic Materials
2010 Jan	SPIE Photonics West, Moscone Center, San Francisco, CA, USA	Tadaaki Nagao	Low-dimensional plasmons in metallic atom sheets, atom chains, and nano-sheets
2010 Jan	The 4th Global COE International Symposium on Advanced Materials Design at Nano- and Mesoscales toward Practical Chemical Wisdom, Tokyo, Japan	Enrico Traversa	Tailoring Nanostructured Oxide Thin Films for Micro-Solid Oxide Fuel Cells
2010 Jan	International Conference on Nanoscience & Technology in Chemistry, Health, Environment & Energy, Agra, India	Lionel Vayssieres	Vertically oriented nanorod-based metal oxide structures and devices for solar hydrogen generation
2010 Jan	14th International workshop on Indian Society for Chemists and Biologists, Lucknow, India	Ajayan Vinu	Multifunctional Nanoporous Materials
2010 Feb	International Conference on Nano Science and Technology (ICONSAT-2010), Mumbai, India	Katsuhiko Ariga	Supramolecular systems for material sensing, separation, and delivery & hand-operating nanotechnology
2010 Feb	1st JST-DFG Workshop on Terahertz Superconductor Electronics, Tsukuba, Japan	Xiao Hu	Theory on phase dynamics in intrinsic Josephson junctions and THz electronics
2010 Feb	The 1st International Conference for Green Technologies, Ajou University, Suwon, Korea	Yukio Nagasaki	Novel Nanosphere Theranostic for Anti-Oxidative Stress

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Feb	Fuel Cell Symposium "Alternative Fuel Cell Materials and Devices", International Hydrogen Energy Development Forum, Fukuoka, Japan	Enrico Traversa	Towards the Miniaturization of Solid Oxide Fuel Cells
2010 Mar	Science Education in the 21st century: Advantages, Pitfalls, USA	Katsuhiko Ariga	Hand-Operating Nanotechnology: A New Supramolecular Trick
2010 Mar	3rd MANA International Symposium 2010, Tsukuba, Japan	Christian Joachim	Quantum Hamiltonian Logic gate
2010 Mar	3rd MANA International Symposium 2010, Tsukuba, Japan	Tadaaki Nagao	Electronic excitations in atom-scale and nanoscale plasmonic materials
2010 Mar	3rd MANA International Symposium 2010, Tsukuba, Japan	Yoshitaka Tateyama	Interfacial water on TiO_2 anatase (101) and (001) surfaces by first-principles molecular dynamics with TiO_2 slabs dipped in bulk water
2010 Mar	2010 International Winterschool on Electronic Properties of Novel Materials (IWEPNM 2010), Kirchberg, Tirol, Austria	Kazuhito Tsukagoshi	Gate-tunable band gap in bilayer graphene
2010 Mar	Iran University of Science and Technology (IUST) conference, Beshhar Branch, Iran	Ajayan Vinu	Advanced Functional Nanomaterials for Energy and Environment
2010 Mar	Nanomeet 2010 Anna University, Chennai, India	Ajayan Vinu	Advanced Functional Nanoporous Materials for Multiple Applications
2010 Mar	Nanomeet 2010 Anna University, Chennai, India	Ajayan Vinu	Nanoporous Materials and their multiple Applications
2010 Mar	Workshop on Materials Nanoarchitectonics for Sustainable Development, Gora Seiunso, Hakone, Japan	Genki Yoshikawa	Piezoresistive cantilever array sensors
2010 Apr	The 3rd Hsinchu-Tsukuba Joint Workshop on Nano and Bio-related Materials and Technologies, National Tsing Hua University, China	Katsuhiko Ariga	Supramolecular Materials and Hand-Operating Nanotechnology,
2010 Apr	The 3rd Hsinchu-Tsukuba Joint Workshop on Nano and Bio-related Materials and Technologies, National Tsing Hua University, China	Guoping Chen	Biomimetic Materials and Porous Scaffolds
2010 Apr	International Symposium on Surface Science Aspects of Pharmaceutical Science, Pharmacology, Cosmetics and Bio-Technology, Danbury, Connecticut, USA	Mitsuhiro Ebara	Switchable Surface Capture/ Release Systems For Cells, Biomolecules, And Analytical Beads
2010 Apr	MRS Spring 2010 Meeting, San Francisco, CA, USA	Xiaosheng Fang	Recent Progress on ZnS nanostructures

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Apr	Opto-Electronic Applications of Carbon Nanotubes (CNT 2010), Chatillion, France	Dmitri Golberg	Boron nitride nanotubes and nano-sheets
2010 Apr	The 7th International Symposium on Intrinsic Josephson Effects and Plasma Oscillation in High-Tc Superconductors, Hirosaki, Japan	Xiao Hu	Intrinsic Josephson junctions used for terahertz amplification and detection
2010 Apr	The 7th International Symposium on Intrinsic Josephson Effects and Plasma Oscillation in High-Tc Superconductors, Hirosaki, Japan	Kazuo Kadowaki	Multi-Stacked Intrinsic Josephson Junctions (IJJ's) as a Coherent Phase Locked (CPL) Quantum Device
2010 Apr	The 3rd Hsinchu-Tsukuba Joint Workshop on Nano and Bio-related Materials and Technologies, National Tsing Hua University, China	Kazuo Kadowaki	Terahertz Radiation from High Temperature Superconductor Intrinsic Josephson Junctions and Its Applications
2010 Apr	International Conference on Nanomaterials (ICN-2010), Mahatma Gandhi University, Athirampuzha, Kottayam, Kerala, India	Masanori Kikuchi	Bone-Mimicking Material: Hydroxyapatite/Collagen Nanocomposite
2010 Apr	The 3rd Hsinchu-Tsukuba Joint Workshop on Nano and Bio-related Materials and Technologies, National Tsing Hua University, China	Jun Nakanishi	Photoresponsive materials for analyzing cellular functions
2010 Apr	2010 Korea-Japan Joint Workshop on Semiconductor Physics and Technology, Daejeon, Korea	Naoki Ohashi	Development of zinc oxide and its related materials and structures
2010 Apr	6th International Conference and Exhibition on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT 2010), Chiba, Japan	Minoru Osada	Bottom-Up Assembly of Oxide Nanosheets Toward Nanoelectronics
2010 Apr	105th Spring Meeting of the Korean Chemical Society, Songdo Convensia, Incheon, Korea	Takayoshi Sasaki	Solution-based Routes to Highly-ordered Nanostructured Films Using Oxide Nanosheets 2D Building Blocks
2010 Apr	The 7th International Symposium on Intrinsic Josephson Effects and Plasma Oscillations in High-Tc Superconductors (PLASMA 2010), Hirosaki, Japan	Hideaki Takayanagi	SQUID coupled with self-assembled InAs Quantum Dot
2010 Apr	MRS Spring 2010 Meeting, San Francisco, CA, USA	Enrico Traversa	Crystalline Order Boosts Ionic Conductivity of Thin Film Electrolytes for Miniaturized Solid Oxide Fuel Cells
2010 Apr	1st Singapore-Japan Workshop on Advances in Nanomaterials: Applications in Electronics, Energy and Health, Singapore	Enrico Traversa	Tailoring Nanostructured Oxide Thin Films for Micro-Solid Oxide Fuel Cells
2010 May	CIFAR Nanoelectronics meeting, Napa Valley, CA, USA	Masakazu Aono	Neuromophic atom switches with short- and long-term learning abilities

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 May	6th Sweden-Japan Workshop on BioNano Technology, Mishima, Shizuoka, Japan	Guoping Chen	Development of Hybrid and Biomimetic Scaffolds for Tissue Engineering.
2010 May	4th International conference on New Diamond and Nano Carbons (NDNC 2010), Suzhou, China	Dmitri Golberg	Boron Nitride and Carbon nanotube properties studied in a transmission electron microscope
2010 May	International Symposium on "High temperature Superconductors in High Frequency Fields (HTSHHF), San Diego, CA, USA	Kazuo Kadowaki	Continuous, Coherent and Intense Terahertz Radiation Using Intrinsic Josephson Junctions of High Temperature Superconductor $Bi_2Sr_2CaCu_2O_{8+\delta}$ Single Crystal Mesas
2010 May	The International Conference on Nanophotonics 2010, Tsukuba, Japan	Tadaaki Nagao	Low-dimensional plasmons in metallic atom sheets, atom chains, and nano-sheets
2010 May	Compound Semiconductor Week 2010, Kagawa, Japan	Naoki Ohashi	Charge compensation in oxide semiconductors
2010 May	International Conference on Core Research and Engineering Science of Advanced Materials, Osaka, Japan	Yoshitaka Tateyama	Ab Initio Free Energy Calculation Methods for Redox Reactions
2010 May	The 6th International Nanotechnology Conference on Communications and Cooperation (INC 6), Grenoble, France	Kazuhito Tsukagoshi	Bilayer graphene
2010 May	6th Sweden - Japan Workshop on BioNano Technology, TORAY Human Resource Development Center, Mishima, Japan	Tomohiko Yamazaki	Engineering chimeric transcriptional regulators for biosensing element in mammalian cells
2010 May	Australia-China Symposium on Nanomaterials for Clean Energy, The University of Queensland, Brisbane, Australia	Jinhua Ye	Nano Photocatalytic Materials: possibilities & challenges
2010 Jun	IBM-NIMS symposium on "Characterization and manipulation at the atomic scale", Tsukuba, Japan	Masakazu Aono	Control and measurement at the atomic/molecular scale
2010 Jun	Interntational workshop on Computing with Spatio-Temporal Dynamics 2010 (CSD10), Tokyo, Japan	Masakazu Aono	Nano-neuromorphic physical intelligence: Atom-switch synapses embedded in neuroplastic like dendritic wiring
2010 Jun	12th International Ceramics Congress (CIMTEC 2010), Montecatini Terme, Italy	Katsuhiko Ariga	Supramolecular approaches for novel functional hybrid materials
2010 Jun	IBM-NIMS symposium on "Characterization and manipulation at the atomic scale", Tsukuba, Japan	James Gimzewski	MANA Brain
2010 Jun	1st International Workshop on Computing with Spatio-Temporal Dynamics, Tokyo, Japan	James Gimzewski	Nano-Neuromorphic Physical Intelligence: Atom-Switch Synanpses Embedded in Neuroplastic-like Dentritic Wiring

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Jun	IBM-NIMS symposium on "Characterization and manipulation at the atomic scale", Tsukuba, Japan	Dmitri Golberg	Nanotube properties studied in TEM
2010 Jun	IMRE Workshop on Atom Technology and Its Applications, Singapore	Tsuyoshi Hasegawa	Novel Nanoionic Devices
2010 Jun	13th International Conference on Intergranular and Interphase Boundaries in Materials (iib 2010), Mie, Japan.	Kazuhiro Hono	Advances in laser assisted atom probe and its applications to the interface characterization of permanent magnets
2010 Jun	The 6th International Conference on Science and Engineering of Novel Superconductors, Montecatini Terme, Tuscany, Italy	Xiao Hu	Theory on THz radiation of intrinsic Josephson junctions of cuprate superconductors
2010 Jun	IMRE Workshop on Atom Technology and Its Applications, Singapore	Christian Joachim	Atom Technologies, an overview
2010 Jun	6th Nanoscience and Nanotechnology Conference, Izmir, Turkey	Kazuo Kadowaki	Angular Dependence of a Powerful THz Emission from Intrinsic Josephson Junctions of High T_c Superconductor Bi2212
2010 Jun	The 6th International Conference on Science and Engineering of Novel Superconductors, Montecatini Terme, Tuscany, Italy	Kazuo Kadowaki	Coherent and Continuous THz Waves Generated from High T_c Superconductor $Bi_2Sr_2CaCu_2O_{8+\delta}$
2010 Jun	12th International Ceramics Congress (CIMTEC 2010), Montecatini Terme, Italy	Takao Mori	High Temperature Thermoelectric Properties of a Homologous Series of n-type Boron Icosahedra Compounds: a Possible Counterpart to p-type Boron Carbide
2010 Jun	27th Conference of Photopolymer Science and Technology, Chiba University, Chiba, Japan	Jun Nakanishi	Photoresponsive Biointerfaces for Controlling Cellular Functions
2010 Jun	12th International Ceramics Congress (CIMTEC 2010), Montecatini Terme, Italy	Minoru Osada	Oxide Nanosheets and Their Integration Technologies for High-k Dielectrics
2010 Jun	12th International Ceramics Congress (CIMTEC 2010), Montecatini Terme, Italy	Yoshio Sakka	Fabrication and anisotropic properties of highly textured ceramics by colloidal processing in a high magnetic field
2010 Jun	3rd International Symposium on SiAlONs and Non-oxides, Cappadocia, Turkey	Yoshio Sakka	Fabrication of textured β-Si_3N_4 and β-Sialon by slip casting in a strong magnetic field and reaction-sintering
2010 Jun	IBM-NIMS symposium on "Characterization and manipulation at the atomic scale", Tsukuba, Japan	Takayoshi Sasaki	Functional Nanosheets of Oxide and Hydroxide: Graphene Analogue
2010 Jun	12th International Ceramics Congress (CIMTEC 2010), Montecatini Terme, Italy	Takayoshi Sasaki	Layer-by-Layer Assembly of Transition Metal Oxide Nanosheets into Ultrathin Functional Films

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Jun	12th International Ceramics Congress (CIMTEC 2010), Montecatini Terme, Italy	Kazunori Takada	Interfacial Phenomena in Solid-State Lithium Batteries with Sulfide Solid Electrolytes
2010 Jun	Workshop on the Physics of Micro and Nano Scale Systems, Ystad, Sweden	Hideaki Takayanagi	Transport Characteristics of a Sperconductor-Based LED
2010 Jun	Japan-China Academic Seminar, Akihabara, Tokyo, Japan	Kazuhito Tsukagoshi	Band gap tuning in graphene device
2010 Jun	International Conference on Electrified Interfaces (ICEI 2010), Geneva, NY, USA	Kohei Uosaki	Interfacial Structure and Stability of Single Crystalline Platinum Electrodes in Various Electrolytes
2010 Jun	Goldschmidt™ 2010 - Earth, Energy and the Environment, Theme on Physics and Chemistry of Earth Materials, Knoxville, TN, USA	Lionel Vayssieres	Water-oxide interfacial thermodynamics: Aqueous growth and surface control of nanostructured metal oxides and oxyhydroxides
2010 Jul	International Conference on Nano-Materials and Renewable Energies (ICNMRE 2010), Safi, Morocco	Masakazu Aono	Neuromorphic atomic switches with short- and long-term learning abilities
2010 Jul	US-Japan-Korea-Taiwan Workshop on "Long-term Impacts and Future Opportunities for Nanotechnology", Tsukuba, Japan	Masakazu Aono	Recent progress in the atomic switch
2010 Jul	International Conference on Science and Technology of Synthetic Metals 2010 (ICSM 2010), Kyoto, Japan	Katsuhiko Ariga	Hand-Operating Nanotechnology: Supramolecular Trick for System Integration
2010 Jul	International Conference on Nano-Materials and Renewable Energies (ICNMRE 2010), Safi, Morocco	James Gimzewski	High resolution atomic force microscopy and medicine
2010 Jul	21st Australian conference on Microscopy and Microanalysis (ACMM-21), Brisbane, Australia	Dmitri Golberg	Nanomaterial properties as revealed by in-situ transmission electron microscopy
2010 Jul	Advances in Nonvolatile Memory Materials and Devices, Soushou, China	Tsuyoshi Hasegawa	Advances in Nonvolatile Memory Materials and Devices
2010 Jul	Japan-China Joint Symposium on Functional Supramolecular Architecture, Jilin University, Changchun Jilin, China	Masayoshi Higuchi	Electrochromic Properties of Organic-Metallic Hybrid Polymers and the Device Application
2010 Jul	Asia-Pacific Conference on Semiconducting Silicides and Related Materials Science and Technology Towards Sustainable Optoelectronics, Tsukuba, Japan.	Kazuhiro Hono	Broadening the applications of the atom probe technique by ultraviolet femtosecond laser
2010 Jul	52nd International Field Emission Symposium, Sydney, Australia	Kazuhiro Hono	Broadening the applications of the atom probe technique by ultraviolet femtosecond laser

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Jul	Low-Energy Electrodynamics in Solids (LEES 2010), Geneva, Switzerland	Kazuo Kadowaki	Coherent THz Radiation from Intrinsic Josephson Junctions
2010 Jul	21st IUPAC International Conference on Chemical Thermodynamics, Tsukuba, Japan	Kohsaku Kawakami	Thermal Analysis in Pharmaceutical Development
2010 Jul	18th International Conference on Composites and Nano Engineering (ICCE-18), Anchorage, AL, USA	Masanori Kikuchi	Effect of macro to nanostructure and porosity on regeneration of dogs' segmental large bone defect
2010 Jul	US-Japan-Korea-Taiwan Workshop on "Long-term Impacts and Future Opportunities for Nanotechnology", Tsukuba, Japan	Takayoshi Sasaki	Inorganic Nanosheets as a Unique Class of 2D Nanomaterials
2010 Jul	EUFOAM 2010 Conference, Borovets, Bulgaria	Lok Kumar Shrestha	Highly Stable Non-aqueous Foams in Glycerol-Based Nonionic Surfactant/Oil Sytems
2010 Jul	6th International Conference on Porphyrins and Phthalocyanines (ICPP-6), New Mexico, USA	Kentaro Tashiro	Supramolecular Chemistry of Metal Bisporphyrinate Double-Decker Complexes with Fullerenes
2010 Jul	6th International Conference on Advanced Materials Processing, Lijiang, China	Lionel Vayssieres	Advanced quantum-rod based metal oxide structures from aqueous solutions
2010 Jul	18th International Conference on Composites or Nano Engineering, Anchorage, AL, USA	Lionel Vayssieres	Latest advances in low cost quantum-rod based metal oxide structures and devices
2010 Jul	5th International Workshop on Emerging Functional Materials, University of Marie Curie, Paris, France	Ajayan Vinu	Advanced Functional Nanoporous Carbon Based Materials and their Application
2010 Jul	7th International Conference on Mesostructured Materials, Sorrento, Italy	Ajayan Vinu	Applications of Carbon Based Nanoporous Materials
2010 Jul	1st International Conference on Materials for Energy (DECHEMA), Karlsruhe, Germany	Jinhua Ye	Nano Photocatalytic Materials: possibilities & challenges (Keynote lecture)
2010 Jul	EPB & Post-IPS Workshop on Solar Photochemistry and Materials for Energy and Environment, POSTECH, Pohang, Korea	Jinhua Ye	New Photocatalytic Materials for Solar Chemical Converson and Environmental Remediation
2010 Jul	28th Progress in Electromagnetics Research Symposium (PIERS), Cambridge, England	Chunyi Zhi	Interactions between BN Nanotubes and Molecules Analyzed by Optical Spectra
2010 Aug	Advanced Materials Science Workshop on Artificial and Self-Organized Nanostructure Sciences and Nano-Technologies for the Sustainable World (4th AEARU), Tsukuba, Japan	Masakazu Aono	Atomic switch and related devices

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Aug	18th International Vacuum Congress (IVC-18), Beijing, China	Masakazu Aono	Controlling electrochemical reactions of atoms, ions, and molecules at the nanoscle
2010 Aug	18th International Vacuum Congress (IVC-18), Beijing, China	Daisuke Fujita	Novel synthesis and nanoscale characterization of graphene-based nanocarbon
2010 Aug	The 7th Pacific Rim International Conference on Advanced Materials and Processing, Cairns, Australia	Kazuhiro Hono	Atomic Tomography of Insulating Ceramics by Laser Assisted 3D Atom Probe
2010 Aug	The 3rd International NanoBio Conference 2010, Zurich, Switzerland	Yukio Nagasaki	Nitroxyl Radical Containing Nanoparti-cle for Novel Theranostics
2010 Aug	Recent Advances in Graphene and Related Materials, Engineering Conferences Interntional, Singapore	Kazuhito Tsukagoshi	Band gap tuning for graphene transistor
2010 Aug	18th International Vacuum Congress (IVC-18), Beijing, China	Takashi Uchihashi	Stacking-fault Superlattices and One-dimensional Surface States of Epitaxial Ag Films on Silicon
2010 Aug	SPIE Optics & Photonics, Symposium on Solar Hydrogen and Nanotechnology, San Diego, USA	Lionel Vayssieres	Quantum rods & dots metal oxide structures & devices for direct solar water splitting
2010 Sep	Trends in Nanotechnology International Conference (TNT 2010), Braga, Portugal	Masakazu Aono	Atomic and molecular electrochemical structure control
2010 Sep	10th International Conference on NanoMaterials, University La Sapienza, Rome, Italy	Masakazu Aono	Atomic and molecular scale control of electrochemical reactions
2010 Sep	Bristol Nano Symposium, Bristol, UK	Masakazu Aono	Control of nano-electrochemical reactions
2010 Sep	11th IUMRS International Conference in Asia (IUMRS-ICA 2010), Qingdao, China	Katsuhiko Ariga	Frontier Researches on Nanomaterials
2010 Sep	11th IUMRS International Conference in Asia (IUMRS-ICA 2010), Qingdao, China	Katsuhiko Ariga	Self-Assembled Materials and Hand-Operating Nanotechnology,
2010 Sep	Trends in Nanotechnology International Conference (TNT2010), Braga, Portugal	Katsuhiko Ariga	Supramolecular Materials & Hand-Operating Nanotechnology for Novel Functions
2010 Sep	11th IUMRS International Conference in Asia (IUMRS-ICA 2010), Qingdao, China	Guoping Chen	Structural Design of Porous Scaffolds for Tissue Engineering
2010 Sep	The 12th International Conference on Aluminium Alloys (ICAA12), Yokohama, Japan	Kazuhiro Hono	Advances in laser assisted 3D atom probe and its applications to light metals (Keynote Talk)
2010 Sep	Passion for Knowledge, Kursaal Conference Center, Donostia, San Sebastian, Spain	Tadaaki Nagao	Plasmon propagation and confinement in atom-scale chains and sheets
2010 Sep	11th IUMRS International Conference in Asia (IUMRS-ICA 2010), Qingdao, China	Minoru Osada	Solution-Based Fabrication of Functional Thin Using Oxide Nanosheets

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Sep	24th Conference of the European Colloid and Interface Society (ECIS 2010), Prague, Czech Republic	Lok Kumar Shrestha	SAXS Studies of Nonionic Reverse Micelles in Nonaqueous Media
2010 Sep	11th IUMRS International Conference in Asia (IUMRS-ICA 2010), Qingdao, China	Lok Kumar Shrestha	Which Parameters Control the Structures of Nonionic Reversed Micelles in Nonaqueous Media?
2010 Sep	International Conference on Superconductivity and Magnetism (SM-2010), Savoy Beach Hotel, Paestum, Salerno, Italy	Hideaki Takayanagi	Spin Detection by Applying the Inverse Proximity Effect on *p* –InMnAs / *n* –InAs / Nb junction
2010 Sep	ESF-NES WORKSHOP 2010: Nanoscale Superconductivity, Fluxonics and Plasmonics, Crete, Greece	Hideaki Takayanagi	Transport properties of a superconductor-semiconductor junction with superlattice structure
2010 Sep	40th European Solid-State Device Research Conference (ESSDERC 2010), Seville, Spain	Kazuhito Tsukagoshi	Gate-induced band gap for graphene device
2010 Sep	Trends in Nanotechnology International Conference (TNT 2010), Braga, Portugal	Kohei Uosaki	Formation, Characterization and Catalytic Properties of Metal Nanoclusters within Molecular Layers
2010 Sep	10th International Conference on NanoMaterials, University La Sapienza, Rome, Italy	Lionel Vayssieres	Low-cost and large scale oriented arrays of metal oxide quantum rods and dots
2010 Sep	1st International Workshop on Renewable Energy & Advanced Materials, Xian, China	Lionel Vayssieres	Quantum-confined metal oxide structures & devices for solar energy conversion
2010 Sep	INDO-ITALIAN advanced level workshop on semiconductor nanostructures, Chennai, India	Ajayan Vinu	Novel Advanced Functional Nanoporous Materials for Catalytic Applications
2010 Sep	Solid State Device and Materials conference (SSDM 2010), Hongo, Tokyo, Japan	Katsunori Wakabayashi	Electronic and Transport Properties of Graphene Nanoribbons and Nanojunctions
2010 Sep	11th IUMRS International Conference in Asia (IUMRS-ICA 2010), Qingdao, China	Jinhua Ye	Nano Photocatalysts for Solar Chemical Conversion and Environmental Remediation
2010 Oct	International Symposium on Stimuli-Responsive Materials, South Mississippi, USA	Takao Aoyagi	Molecular Design for Functional Thermo-Responsive Polymers and Their Biomedical Applications
2010 Oct	Japan-Finland Workshop on Atomic defects in LD- materials, Kyoto, Japan	Dmitri Golberg	Carbon and boron nitride nanotube mechanical and electrical properties probed in transmission electron microscope
2010 Oct	Materials Science & Technology 2010 Conference and Exhibition, Houston, USA	Tsuyoshi Hasegawa	Nanoionics Switching Devices: "Atomic Switches"
2010 Oct	UdS-Japanese JSPS Symposium on Supramolecular Nanomaterials, Strasbourg, France	Masayoshi Higuchi	Electrochromic Devices Using Organic-Metallic Hybrid Polymers

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Oct	7th National Conference on Functional Materials and Applications, Central South University, Changsha, China	Renzhi Ma	Synthetic Chemistry and Exfoliation of Layered Double Hydroxide: Multifunctional Nanosheets
2010 Oct	The 17th International SPACC Symposium, Kagoshima, Japan	Yukio Nagasaki	Nanoparticles stabilized by coordination of double hydrophilic block copolymers -Diagnostics, imaging and therapy
2010 Oct	Nanomedicine and Drug delivery Symposium (Nano DDS'10), Hilton Omaha, NE, USA	Yukio Nagasaki	Novel Nanparticles Functionalized for Anti-Oxidative Stress
2010 Oct	Fullerene Silver Anniversary Symposium, Crete, Greece	Kentaro Tashiro	Host-Guest Chemistry for the Separation of Fullerenes
2010 Oct	9th Brazilian MRS Meeting, Ouro Preto, Brazil	Lionel Vayssieres	Low cost metal oxide quantum confined structures for solar hydrogen generation
2010 Nov	2010 ITRS Memory Materials Workshop, Tsukuba, Japan	Masakazu Aono	Metal Filament
2010 Nov	9th Japan-France Workshop on Nanomaterials, Toulouse, France	Masakazu Aono	Recent progress in the atomic switch and related devices
2010 Nov	Asian Conference on Nanoscience & Nanotechnology (AsiaNANO 2010), Tokyo, Japan	Katsuhiko Ariga	Hand-Operating Nanotechnology
2010 Nov	9th Japan-France Workshop on Nanomaterials, Toulouse, France	Yoshio Bando	One dimensional inorganic nanomaterials for sensor and emitter applications
2010 Nov	2010 International Symposium of Materials on Regenerative Medicine, National Health Research Institute, Zhunan, Taiwan	Guoping Chen	Design and Fabrication of Biomimetic and Hybrid Scaffolds for Tissue Engineering.
2010 Nov	6th International Symposium on High-Tech Polymer Materials, Laboratory of Advanced Polymer Materials, Xiamen, China	Guoping Chen	Preparation of Porous Scaffolds of Biodegradable Synthetic and Naturally Derived Polymers for Tissue Engineering
2010 Nov	The 11th Consciousness Reframed Conference, Trondheim, Norway	James Gimzewski	What Art can do for Science: Learning to Learn
2010 Nov	54th Symposium of the Japanese Society of Microscopy, Kanazawa, Japan	Dmitri Golberg	Nanomaterial properties as revealed by in-situ TEM
2010 Nov	6th International Symposium on High-Tech Polymer Materials, Institute of Chemistry, Chinese Academy of Sciences, Xiamen City, China	Masayoshi Higuchi	Electrochromic Properties of Organic-Metallic Hybrid Polymers and the Device Application
2010 Nov	The 4th Global COE International Symposium on "Towards a Sustainable Future", Hokkaido University, Sapporo, Japan	Masayoshi Higuchi	Electrochromic properties of organic-metallic hybrid polymers and their application to display devices
2010 Nov	2010 Fall conference of the Korean Institute of Metals and Materials, Changwon, Korea	Kazuhiro Hono	Enhancement of precipitation hardening of magnesium alloys by microalloying

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Nov	55th Annual Conference on Magnetism and Magnetic Materials (MMM 2010), Atlanta GA, USA	Kazuhiro Hono	Microstructure and coercivity relationships in permanent magnets for energy-efficient devices
2010 Nov	9th Japan-France Workshop on Nanomaterials, Toulouse, France	Christian Joachim	Molecule logic gate and surface atomic scale circuits
2010 Nov	FIP Pharmaceutical Sciences 2010 World Congress, New Orleans, USA	Kohsaku Kawakami	Physical Stability of Amorphous Formulations: Is It Predictable?
2010 Nov	2010 International Symposium of Materials on Regenerative Medicine, National Health Research Institutes, Zhunan, Taiwan	Naoki Kawazoe	Manipulation of Stem Cell Functions on Photografted Polymer Surfaces
2010 Nov	The 37th Annual Meeting of Japanese Society for Clinical Biomechanics, Kyoto, Japan	Masanori Kikuchi	Bone Regeneration using Inorganic/Organic Composites (in Japanese)
2010 Nov	18th Meeting of The Korean Society for Biomaterials, Hospital of Seoul National University, Seoul, Korea	Masanori Kikuchi	Critical Bone Defect Regeneration Solely with Artificial Bone Materials
2010 Nov	3rd International Congress on Ceramics (ICC3), Osaka, Japan	Masanori Kikuchi	Effect of Microstructure of Artificial Bone on Regeneration of Critical Tibia Defect
2010 Nov	3rd International Congress on Ceramics (ICC3), Osaka, Japan	Renzhi Ma	Synthesis, Topotactic Transformation and Nanofilm Fabrication of Layered Hydroxide Hexagonal Platelet Crystals
2010 Nov	2010 MRS Fall Meeting, Boston, MA, USA	Takao Mori	Advances in Thermoelectric Perspective of Borides
2010 Nov	9th Japan-France Workshop on Nanomaterials, Toulouse, France	Tomonobu Nakayama	Single-molecule-level and multi-state bit operation using controlled chemical reaction between C_{60} molecules
2010 Nov	27th International Korea-Japan Seminar on Ceramics, Songdo, Incheon, Korea	Minoru Osada	Bottom-Up Assembly of Oxide Nanosheets Towards Tailored Nanoelectronics
2010 Nov	3rd International Congress on Ceramics (ICC3), Osaka, Japan	Minoru Osada	Functional Oxide Nanosheets for Tailored Nanoelectronics
2010 Nov	3rd International Congress on Ceramics (ICC3), Osaka, Japan	Minoru Osada	High-k Dielectrics Fabricated From Oxide Nanosheets
2010 Nov	The International Symposium on Visualization in Joining & Welding Science through Advanced Measurements and Simulation (Visual-JW 2010), Osaka, Japan	Minoru Osada	Oxide Nanosheets and Their Assemblies for New Ceramic Joining and Smart Processing
2010 Nov	3rd International Congress on Ceramics (ICC3), Osaka, Japan	Tadashi Ozawa	Rare-earth Doped Oxide Nanosheets for Nanosheet Lighting
2010 Nov	Advanced Materials Forum, Inha University, Incheon, Korea	Yoshio Sakka	Fabrication of innovative ceramics through fine particle processing

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Nov	3rd International Congress on Ceramics (ICC3 2010), Osaka, Japan	Yoshio Sakka	Fabrication of textured ceramics by colloidal processing in a strong magnetic field and subsequent sintering
2010 Nov	3rd International Congress on Ceramics (ICC3 2010), Osaka, Japan	Takayoshi Sasaki	Inorganic Nanosheets as a Unique Class of Nanoscale Materials : Synthesis, Properties and Applications
2010 Nov	3rd International Congress on Ceramics (ICC3 2010), Osaka, Japan	Tatsuo Shibata	Two-dimensional Nanosheet as a Seed Layer to Control Crystallographic Orientation of Oxide Thin Films on Glass substrates
2010 Nov	Materials For Green Energy, National Taiwan University of Science and Technology, Taiwan	Kazunori Takada	Development of safe and high-performance Li-ion batteries by a unique design of interfaces
2010 Nov	The 1st China, Japan and Korea Joint Symposium, Chonju, Korea	Kazuhito Tsukagoshi	Band-gap tunable operation of bilayer graphene device
2010 Nov	Korea-Japan Special Symposium for the Future, KIST, Seoul, Korea	Kohei Uosaki	In situ Real Time Investigation on the Structure at Electrode/electrolyte Interfaces by Surface X-ray Scattering
2010 Nov	7th Asia Nano Forum Summit, Hanoi Polytechnic University, Vietnam	Lionel Vayssieres	On solar hydrogen & nanotechnology
2010 Nov	5th International Workshop on Advanced Materials Science and Nanotechnology, Hanoi, Vietnam	Lionel Vayssieres	Quantum confined metal oxide structures & devices
2010 Nov	2010 MRS Fall Meeting, Boston, MA, USA	Lionel Vayssieres	Quantum rods and dots-based structures & devices: Low cost aqueous synthesis and bandgap engineering for solar hydrogen and solar cells applications
2010 Nov	23rd International Microprocess and Nanotechnology Conference (MNC 2010), Fukuoka, Japan	Katsunori Wakabayashi	Theoretical Aspects on Graphene
2010 Nov	UCL-LCN meeting, University College London, Londo, England	Genki Yoshikawa	Optimization of Piezoresistive Cantilever Array Sensors Towards Highly Sensitive Membrane-type Surface stress Sensors (MSS)
2010 Dec	NSF-MEXT Young Scientists Symposium on Nanomanufacturing, Tsukuba, Japan	Masakazu Aono	Control of atomic and molecular scale electrochemical reactions
2010 Dec	DAE-BRNS 3rd International Symposium on Materials Chemistry (ISMC 2010), Mumbai, India	Katsuhiko Ariga	Hand-Operating Nanotechnology: How to Control NANO by MACRO
2010 Dec	The International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA	Katsuhiko Ariga	Hybrid supramolecular mesoporous materials

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Dec	The Winter School on Chemistry and Physics of Materials (JNCASR 2010), Bangalore, India	Yoshio Bando	BN nanotubes and nanosheets
2010 Dec	The 3rd Bangalore Nano 2010 Conference, Bangalore, India	Yoshio Bando	Nanotechnology R&D in Japan and outline of NIMS
2010 Dec	The International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA	Yoshio Bando	Novel synthesis and property of BN nanotubes and nanosheets
2010 Dec	The International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA	Alexei Belik	$(In_{1-y}M_y)MO_3$ (M = Mn and $Mn_{0.5}Fe_{0.5}$): Unusual Perovskites with Unusual Properties
2010 Dec	International Symposium on Molecular Nanotechnology, Nara, Japan	Guoping Chen	Autologous Extracellular Matrix Scaffolds for Tissue Engineering and Regenerative Medicine
2010 Dec	Device Art Symposium on Art and Science (sponsored by JST/ CREST), UCLA, Los Angeles, CA, USA	James Gimzewski	From Nano Science to Device Art - Introducing the UCLA Art|SCi Center
2010 Dec	Towards Reality in Nanoscale Materials 2010, Levi, Finland	Dmitri Golberg	Recent advances in boron nitride nanotubes, nanoribbons and nano-sheets
2010 Dec	The International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA	Masayoshi Higuchi	Device application of organic-metallic hybrid polymers with electrochromic propertie
2010 Dec	The 17th International Display Workshops (IDW 2010), Fukuoka, Japan	Masayoshi Higuchi	Electrochromic Display Using Organic-Metallic Hybrid Polymers
2010 Dec	The International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA	Xiao Hu	Theoretical design of half-metallic antiferromagnet based on per-ovskite cuprate
2010 Dec	2nd International Symposium on the Photofunctional Chemistry of Complex Systems (ISPCCS), Kona, Hawaii, USA	Ashraful Islam	Molecular Engineering of Ru(II) Complexes for Panchromatic sen-sitization of Nanocrystalline TiO2 Film
2010 Dec	2nd International Winter Symposium of the Global COE Program, Hokkaido University, Sapporo, Japan	Kazunori Takada	Nanometer-scale interfacial design for solid-state lithium batteries
2010 Dec	International Conference of AUMS (ICAUMS2010), Jeju Island, Korea	Hideaki Takayanagi	Transport of a superconducting LED and Andreev Polaron
2010 Dec	The International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA	Kentaro Tashiro	Precise Control of Supramolecular Interactions between Fullerenes and Meta lloporphyrins: Applications for Molecular and Materials Sciences of Carbon Nanoclusters

Date	Name and Venue of International Conference	Name of Speaker	Title of Invited Lecture
2010 Dec	The International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA	Yoshihiro Tsujimoto	Study of low dimensional magnets synthesized by low-temperature reaction
2010 Dec	The International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA	Kazuhito Tsukagoshi	Band-gap tunable operation of bilayer graphene device
2010 Dec	The 17th International Display Workshops (IDW 2010), Fukuoka, Japan	Kazuhito Tsukagoshi	Organic Single Crystals with Band-Like Transport in Field-Effect Transistors
2010 Dec	The International Chemical Congress of Pacific Basin Societies (Pacifichem 2010), Honolulu, Hawaii, USA	Kohei Uosaki	Preparation and Characterization of Catalyst Dispersed on and with-in Molecular Layer Directly Bonded to H-Si(111) Surface
2010 Dec	20th National Symposium on Catalysis, IIT Chennai, India	Ajayan Vinu	Multiple Applications of Nanoporous Materials with Functional Elements
2010 Dec	International Conference on Quantum Effects in Solids of Today (I-ConQuEST), Delhi, India	Katsunori Wakabayashi	Electronic and transport properties of nano-graphene systems
2010 Dec	20th MRS-Japan Academic Symposium, Yokohama, Japan	Tomohiko Yamazaki	Effects of nanomaterials on cellular gene expressions

Appendix 8.10: Patents

List of Japanese Patent Applications (October 2007 – December 2010):

No.	Name of Invention	Application Number	Date of Application
1	Method of mass production of ZnO nanowires	2007-272490	2007 Oct 19
2	Thermally stable resin composition having excellent mechanical properties and process for production thereof	2007-275072	2007 Oct 23
3	Co based Heusler alloy half-metal	2007-276353	2007 Oct 24
4	A metal compound probe for Raman spectroscopy	2007-276691	2007 Oct 24
5	Gel of BN nanotubes, alkylation of BN nanotubes and their fabrication process	2007-282523	2007 Oct 30
6	Synthetic method for anion-exchangeable layered double hydroxides	2007-314339	2007 Dec 5
7	A nanoscale pH sensor	2007-323034	2007 Dec 14
8	Optical devices and their applications to display devices	2007-325022	2007 Dec 17
9	High strength sintered steel	2007-329408	2007 Dec 21
10	Mesoporous Carbon (MC-MCM-48) and Method for Producing the Same	2007-334245	2007 Dec 26
11	Cage Type Mesoporous Silica (SNC-2), Method for Producing the Same and Absorbent Using the Same	2007-334246	2007 Dec 26
12	Mesoporous Carbon (CNP-2) and Method for Producing the Same	2007-334247	2007 Dec 26
13	BN nanofibers and their fabrication process	2007-336861	2007 Dec 27
14	Dope solution for molding	2008-000645	2008 Jan 7
15	Swellable layered double hydroxides and sol, gel and nanosheets derived from them	2008-012914	2008 Jan 23
16	Layered oxide phosphors and oxide nanosheet phosphors	2008-014606	2008 Jan 25
17	Layered rare-earth hydroxides and their photoluminescent material	2008-025833	2008 Feb 6
18	Synthetic method of layered rare-earth hydroxides	2008-025834	2008 Feb 6
19	Rechargeable solid-state lithium battery	2008-032828	2008 Feb 14
20	Electrode element, method of manufacturing electrode element, and lithium ion secondary battery	2008-036537	2008 Feb 18
21	Frequency conversion devices made of lithium tantalite single crystal	2008-039835	2008 Feb 21
22	Cobalt hydroxide crystals, cobalt hydroxide unilamellar nanosheets and their fabrication process	2008-043681	2008 Feb 26
23	Electronic devices and method of their fabrication	2008-054671	2008 Mar 5
24	An instrument for sample preparation and characterization	2008-062344	2008 Mar 12
25	Storage media, recording system, and methods for data recording and erasing	2008-054917	2008 Mar 13
26	Recording media, its implementation, and the methods of recording and erasing information	2009-505219	2008 Mar 17
27	Apparatus for producing artificial opal film	2008-076953	2008 Mar 25
28	Characterization methods for substrates of semiconductor solid solutions	2008-079863	2008 Mar 26
29	Fabrication method of nano electron emitters	2008-080358	2008 Mar 26

No.	Name of Invention	Application Number	Date of Application
30	Metal-doped Mesoporous Silica (MeKIT-5) and Method for Producing the Same	2008-100264	2008 Apr 8
31	Polymer electrolytes having excellent mechanical properties, dimension stabilities and their fabrication process	2008-110103	2008 Apr 21
32	Polarization-tailored devices	2008-118118	2008 Apr 30
33	Transparent magnetic films, reading techniques for magnetic patterns, fabrication methods for transparent magnets, and magnetic patterns	2008-118785	2008 Apr 30
34	Synthetic method of anion-exchangeable layered double hydroxides	2008-119873	2008 May 1
35	TiN-based crystals and their bonding bodies	2008-131424	2008 May 20
36	Transparent magnetic films, reading techniques for magnetic patterns, fabrication methods for transparent magnets, and magnetic patterns	2008-135379	2008 May 23
37	TiN-based crystals	2008-131429	2008 Jun 5
38	Photocatalytic nanosheets and their coating films	2008-147592	2008 Jun 5
39	Electro-magnetic absorbers	2008-151636	2008 Jun 10
40	Superconducting sintered bodies and their preparation method	2008-170178	2008 Jun 30
41	Nanosheet phosphor materials and fluorescent lighting, solar cells and color displays utilizing nanosheet phosphors	2008-180826	2008 Jul 11
42	Nanosheet paint	2008-180828	2008 Jul 11
43	Photoresponsive drug delivery system (DDS) and drug-conjugated photoresponsive DDS	2008-184326	2008 Jul 15
44	Environment friendly Yellow pigment	2008-194346	2008 Jul 29
45	Co based Heusler alloy half-metal	2008-199712	2008 Aug 1
46	Current perpendicular to plan giant magnetoresistance device	2008-219619	2008 Apr 28
47	Age hardening magnesium Sn alloy	2008-243311	2008 Sep 22
48	Age hardening Magnesium Mg-Sn alloy	2008-243342	2008 Sep 22
49	Polymer brush-solid hybrid material and its manufacturing	2008-247361	2008 Sep 26
50	Graphene-coated materials and the fabrication method	2008-261875	2008 Oct 8
51	Prepregs having high thermal conductivities, process for production thereof and laminates	2008-269820	2008 Oct 20
52	Cage-type mesoporous silica (SNC-2): its synthetic method and application as adsorbents	2008-271929	2008 Oct 22
53	Mesoporous carbon (CNP-2) and its synthetic method	2008-272012	2008 Oct 22
54	Mesoporous carbon (MC-MCM-48) and its synthetic method	2008-274047	2008 Oct 24
55	Preparation of crystalline-oriented titania photoelectrodes	2008-288304	2008 Nov 11
56	Synthesis of semiconductor nanowires and fabrication of vertical-type field effect transistors using semiconductor nanowires	2008-296940	2008 Nov 20
57	ZnS/ZnO biaxial nanowires and their fabrication process	2008-297575	2008 Nov 21
58	Co based Heusler alloy and manetic device	2008-299551	2008 Nov 25
59	Calibration method of dopant impurities	2008-308073	2008 Dec 3
60	Organic field effect transistor	2008-321975	2008 Dec 18
61	A nanorod blend for liquid crystal display for polarization-tailored electro-optic devices	2008-322401	2008 Dec 18
62	Nano-conductance materials and their fabrication process	2009-006731	2009 Jan 15
63	Dry process apparatus	2009-007329	2009 Jan 16

No.	Name of Invention	Application Number	Date of Application
64	PH sensitive nanomaterials and their fabrication process	2009-010581	2009 Jan 21
65	An ordered mesoporous fullerene with high specific surface area and fabrication method thereof,	2009-021407	2009 Feb 2
66	TiO_2 nanoparticle	2009-021457	2009 Feb 2
67	BN nanoparticles and their fabrication process	2009-002174	2009 Feb 3
68	Nanocrystal particle terminated with organic monolayers and preparation method of nanocrystal particle terminated with organic monolayers	2009-037746	2009 Feb 20
69	Hetero pn junction semiconductor and its fabrication method	2009-045406	2009 Feb 27
70	Surface-enhanced Raman scattering-responsive nanoscale pH sensor	2009-048844	2009 Mar 3
71	High thermal conductive prepregs, their fabrication process and laminates	2009-051914	2009 Mar 5
72	Light-emitting device	2009-052779	2009 Mar 6
73	Chip-based immunosensor	2009-077715	2009 Mar 26
74	Layered rare earth hydroxides and their films and their fabrication method	2009-081303	2009 Mar 30
75	Silicon nanoparticles light emitting devices	2009-089645	2009 Apr 2
76	Rare earth oxide phospors and their films and their fabrication method	2009-090042	2009 Apr 2
77	Light emitting sheets	2009-097564	2009 Apr 14
78	Ferromagnetic tunnel junctionand its applications to magnetoresistive devices	2009-099483	2009 Apr 16
79	Luminous nanosheets and their applications in phosphor materials, solar cells and color displays	2009-099595	2009 Apr 16
80	Nanosheet paint	2009-101578	2009 Apr 20
81	Lithium Tantalate Single Crystal, Frequency Conversion device and Frequency Conversion Apparatus	2009-107382	2009 Apr 27
82	High anti-corrosive resin composition materials of fluorocarbon system and fabrication method of the same	2009-107770	2009 Apr 27
83	Photodegradable heterobifunctional crosslinker	2009-114028	2009 May 8
84	Anode material and lithium battery using the same	2009-117114	2009 May 14
85	Hydrogen evolution material	2009-125016	2009 May 25
86	ZnS nanobelts, their fabrication process and UV sensitive devices	2009-131847	2009 Jun 1
87	Hetero pn junction semiconductor and its fabrication method	2009-132693	2009 Jun 2
88	Molecular electronic devices and method of their fabrication	2009-169740	2009 Jul 21
89	Thermoelectric device/element	2009-171907	2009 July 23
90	Rare earth boride thermoelectric device/element and thermoelectric power generating device/element	2009-171979	2009 July 23
91	Thermoelectric semiconductor and thermoelectric power generating device/element	2009-172597	2009 July 24
92	Current perpendicular plane giant magnetoresistive devices	2009-182968	2009 Aug 6
93	Rubber composites having excellent mechanical properties and process for production thereof	2009-183438	2009 Aug 6
94	Nano-ribbon and its fabrication method, nano-ribbon FET and its fabrication method, DNA sequencing method and apparatus using nano-ribbon	2009-194892	2009 Aug 26

No.	Name of Invention	Application Number	Date of Application
95	Fabrication method of graphene film	2009-199126	2009 Aug 31
96	Production of substrates for dielectric and conductive films, their device and electronics	2009-205911	2009 Sep 7
97	Methodology and an instrument for simultaneous thermal analysis of multiple samples	2009-219189	2009 Sep 24
98	Single-crystalline ZnSe blue/ultraviolet-light photodetectors and its fabrication method	2009-232381	2009 Oct 6
99	Ultra thin BN nanosheets, their fabrication process and photo devices including their sheets	2009-234651	2009 Oct 8
100	Boron doped semiconductor nanowires and their synthesis methods	2009-236883	2009 Oct 14
101	Derivatives of boron nitride nano-tube, dispersion liquid of the same and fabrication method of the same derivatives of boron nitride nano-tube	2009-257104	2009 Nov 10
102	Analysis of dopant atoms in dopant doped Ge	2009-258108	2009 Nov 11
103	Fabrication method of contact and structure in the organic transistor	2009-268309	2009 Nov 26
104	BN nanofibers, their fabrication process and production process of nanotubes	2009-279375	2009 Dec 9
105	UV micro-sensors and their fabrication process	2009-279520	2009 Dec 9
106	Nanoparticle preparing equipment and preparation method of nanoparticle using it	2009-280039	2009 Dec 10
107	Highly porous solid material made of biodegradable polymer and method of fabricating the same	2010-003539	2010 Jan 12
108	Use of 5-aminolevulinic acid as targeting ligands	2010-005160	2010 Jan 13
109	Vertical magnetic memory devices and fabrication method of the same	2010-005598	2010 Jan 14
110	Immuno-latex particles and methods of producing thereof	2010-050661	2010 Jan 14
111	Bio friendly devices	2010-022565	2010 Feb 3
112	Bio resorbable polymers and their medical devices and blood vessels	2010-023909	2010 Feb 5
113	Smart window using organic/metal hybrid polymers and fabrication method of the same and smart window system	2010-025058	2010 Feb 8
114	Compositions comprosing small molecule anti-oxidantagents and polymeric compound containing ring compound possessing nitroxyl radical	2010-028199	2009 Feb 10
115	Electrode structure, device and its fabrication process	2010-034179	2010 Feb 19
116	Polymeric micelle containing nitric oxide donors responsive to photoirradiation	2010-037558	2010 Feb 23
117	Metal complex compound array and fabrication method of the same	2010-038460	2010 Feb 24
118	Method for epitaxial growth of graphene film	2010-047225	2010 Mar 4
119	Synthesis of brookite	2010-048998	2010 Mar 5
120	Perovskite oxide nanosheets dispersed in organic solvents, their synthetic process, and fabrication of oxide films using them	2010- 054207	2010 Mar 11
121	Titania nanosheets dispersed in organic solvents, their synthetic process, and fabrication of titania films using them	2010-054215	2010 Mar 11
122	Method for forming polarization reversal	2010-081377	2010 Mar 31

No.	Name of Invention	Application Number	Date of Application
123	Transparent alumina and Method of producing thereof	2010-082042	2010 Mar 31
124	Fullerene structure materials, fabrication method of the same and usage using of the same	2010-087058	2010 Apr 5
125	Carbohydrate-modified oligonucleotide-conjugates with rare metal	2010-095337	2010 Apr 16
126	Inductor composed of arrayed capacitors	2010-096217	2010 Apr 19
127	Electro-conductive poly-rotaxane (PCT application)	2010-057178	2010 Apr 22
128	Textured Max Phases and method of fabrication thereof	2010-104687	2010 Apr 30
129	Hybrid materials of Si nanocrystals and Si nanowires application for solar cells and light emitting devices and their fabrication methods	2010-113778	2010 May 18
130	Fabrication method of rare- earth permanents magnet and rare- earth permanents magnets	2010-116531	2010 May 20
131	Superhard Composite Material and Method of Producing the Same	2010-116823	2010 May 21
132	Surface Stress Sensor	2010-118859	2010 May 24
133	Electric field spinning fiber mat composite materials and glucose sensor	2010-118973	2010 May 25
134	Method of production and thermoelectric module of transition metal doped rare earth boron carbide semiconductor	2010-122311	2010 May 28
135	Electrode catalysts for fuel cells and their production	2010-124715	2010 May 31
136	Electrode catalysts for fuel cells and their production	2010-124716	2010 May 31
137	Display devices and color electric paper using the same	2010-059638	2010 Jun 7
138	Dry Powder Inhaler	2010-136369	2010 Jun 15
139	Counting method of two-dimensional atomic film and counting system	2010-145314	2010 Jun 25
140	Formation method of organic semiconductor thin film	2010-148435	2010 Jun 30
141	Electochromic complex compounds and electrochromic devices using the same	2010-153792	2010 Jul 6
142	Fabrication method of rare- earth permanents magnet and rare- earth permanents magnets	2010-171905	2010 Jul 30
143	Derivatives of boron nitride nano-tube, dispersion liquid of the same and fabrication method of the same derivatives of boron nitride nano-tube	2010-178678	2010 Aug 9
144	Fiber probe and its fabrication method	2010-193012	2010 Aug 31
145	Apparatus for forming polarization inversion region	2010-193460	2010 Aug 31
146	Fabrication method of fibrous leaves	2010-197279	2010 Sep 3
147	High hardness B4C oriented via strong magnetic field technique and method of manufacturing same	2010-206450	2010 Sep 15
148	Electrochemical Transistor	2010-211492	2010 Sep 22
149	Use of polymeric compounds containing ring compound possessing nitroxyl radical for enhancing the effect of therapeutically active agent	2010-211826	2010 Sep 22
150	Electrolyte materials and its fabrication method for solid fuel cell	2010-213251	2010 Sep 24
151	Chiral shift chemicals for NMR and method determining optical purity or absolute configuration using of the same	2010-216279	2010 Sep 28
152	Tissue adhesive membranes and their fabrication methods	2010-225360	2010 Oct 5
153	Tissue adhesive and their fabrication methods	2010-225368	2010 Oct 5

No.	Name of Invention	Application Number	Date of Application
154	Fabrication method of sulfides and selenides	2010-226230	2010 Oct 6
155	Mixing and expelling devices	2010-229851	2010 Oct 12
156	Ferroelectric films based on superlattice structures, their device, and their production	2010-230132	2010 Oct 13
157	Fabrication method of field effect transistors	2010-231352	2010 Oct 14
158	Switching devices and switch array	2010-242874	2010 Oct 29
159	Graphene film formation and film	2010-247122	2010 Nov 4
160	Fabrication method of dens electrolyte materials for solid fuel cell	2010-250535	2010 Nov 9
161	Bio hybrid materials, their fabrication methods and stents	2010-263403	2010 Nov 26
162	Metal complex compounds, ligands and dye-chromic sensitization solar cells using the metal complex compounds	2010-264260	2010 Nov 26
163	Stent made from nickel-free stainless	2010-264359	2010 Nov 26
164	Metal complex compounds and Dye-chromic sensitization solar cell using the complex compound	2010-264427	2010 Nov 26
165	Metal complex compounds, dye-chromic sensitization solar oxide semiconductive electrodes and dye-chromic sensitization solar cells	2010-268761	2010 Dec 1
166	Zirconium diboride power and method of synthesizing thereof	2010-286891	2010 Dec 24

List of International Patent Applications (October 2007 – December 2010):

No.	Name of Invention	Application Number	Date of Application
1	Dielectric devices and their fabrication methods	PCT/JP2007/074552	2007 Dec 20
2	Lead-free magneto-optical devices and their fabrication methods	PCT/JP2008/054656	2008 Mar 13
3	Recording media, its implementation, and the methods of recording and erasing information	PCT/JP2008/054917	2008 Mar 17
4	Mesoporous carbon nitride and its synthetic method	PCT/JP2008/056802	2008 Apr 4
5	High strength and high ductility magnesium alloys	PCT/JP2008/058677	2008 May 9
6	Magnetio Film, Magnetio Recording/Reproducing Device, and Polarization Conversion Component	US Patent 12/135472	2008 Jun 9
7	Organic solvent dispersion of titania nanosheet and its film	PCT/JP2008/065989	2008 Sep 4
8	Fabrication method of sensor material for surface enhanced infrared absorption	PCT/JP2008/066107	2008 Sep 5
9	Totally-solid lithium secondary battery	PCT/IB2009/000240	2009 Feb 12
10	Electrode element, method of manufacturing electrode element, and lithium ion secondary battery	PCT/IB2009/000279	2009 Feb 17
11	Dielectric films, high-k devices and their fabrication methods	PCT/JP2009/059550	2009 May 25
12	Dielectric Film, Dielectric Element, and Process for Producing the Dielectric Element	US Patent 12/933952	2009 May 25
13	Dielectric Film, Dielectric Element, and Process for Producing the Dielectric Element	Korea Patent 2010-7025789	2009 May 25
14	Electromagnetic wave absorbers	PCT/JP2009/060636	2009 Jun 10
15	Luminous nanosheets and their applications in phosphor materials, solar cells, color displays, nanosheet paint	PCT/JP2009/062681	2009 Jul 13
16	Alloy particles and wires used for atmospheric plasma spray and wire arc spray	PCT/JP2009/066508	2009 Sep 24
17	High thermal conductive prepregs, their fabrication process and laminates	PCT/JP2009/068293	2009 Oct 19
18	Fabrication of dual structure ceramics by a single step process	US Patent 61/255645	2009 Oct 28
19	Analysis of Ex vivo cells for disease state detection and therapeutic agent selection and monitoring	PCT/US2008/085194	2009 Nov 26
20	TiO2 nano particles	PCT/JP2010/051256	2010 Jan. 29
21	Boron nitride spherical nano-grains and fabrication method of the same	US Patent 12/698897	2010 Feb 2
22	Ultra thin boron nitride nano-sheets, fabrication method of the same and optical devices containing sheets of the same	US Patent 12/758787	2010 Apr 12
23	Anode material and lithium secondary battery with the same	PCT/JP2010/058110	2010 May 13
24	Hydrogen generation equipment and making materials thereof	PCT/JP2010/058770	2010 May 24
25	Fabrication method and structure of electrode for organic device	PCT/JP2010/071096	2010 Nov 26

List of Japanese Patent Registrations (October 2007 – December 2010):

No.	Name of Invention	Registration Number	Date of Registration
1	Ga_2O_3 nanowires and their fabrication process	4025869	2007 Oct 19
2	Fabrication process of MgO nanocables and nanotubes	4025872	2007 Oct 19
3	Process for production of BN nanowires	4025873	2007 Oct 19
4	Fabrication process of GaN nanowires covered with gallium oxides	4025876	2007 Oct 19
5	Process for production of BN nanotubes included magnesium peroxides	4029158	2007 Oct 26
6	Manganese oxide nanosheet	4035599	2007 Nov 9
7	Layered cobalt oxide hydrate	4041883	2007 Nov 22
8	Electrochromic film	4051446	2007 Dec 14
9	Porous manganese oxide pillared with aluminum polyoxoions	4065953	2008 Jan 18
10	Single crystalline α-, β-Si_3N_4 nanoribbons and their fabrication process	4072622	2008 Feb 1
11	Lithium tantalate single crystal, its optical devices and growth method	4107365	2008 Apr 11
12	Photorefractive material	4139881	2008 Jun 20
13	Poling method of ferroelectric single crystals	4148451	2008 Jul 4
14	Shape control method of nanostructures	4192237	2008 Oct 3
15	ZnCdS nanocables and their fabrication process	4072622	2009 Feb 20
16	Textured sintered bodies of β-alumina and β”-alumina, and their preparation method	4269049	2009 Mar 6
17	Thin film with ferroelectric mesocrystals and its synthesis method	4360467	2009 Aug 21
18	Hydrous sodium cobalt oxide	4370382	2009 Sep 11
19	Optical Modulator	4420202	2009 Dec 11
20	Ultrahigh Vacuum Scanning Probe Microscope	4431733	2010 Jan 8
21	Semiconductor substrates and production process of them	4441605	2010 Jan 22
22	Aluminum nitride nano tube and method for producing the same	4441617	2010 Jan 22
23	Zinc sulfide nano tube of hexagonal crystal system and method for producing the same	4452813	2010 Feb 12
24	Single crystal α-Alumina tube and its fabrication method	4469982	2010 Mar 12
25	Ceramic porous materials	4478777	2010 Mar 26
26	Hologram recording medium and hologram recording/ reproducing device	4496328	2010 Apr 23
27	Method for forming polarization reversal	4521859	2010 Jun 4
28	Biomaterials	4529005	2010 Jun 18
29	Calcium Zirconate Powder	4534001	2010 Jun 25
30	Fabrication method of high pure boron nitride tube	4534016	2010 Jun 25
31	Lithium Niobate single crystal, optical element thereof and method for producing the same	4553081	2010 Jul 23
32	Wavelength conversion element consisting of lithium tantalate single crystal	4569911	2010 Aug 20
33	Electric device by use of solid electrolyte	4575664	2010 Aug 27

No.	Name of Invention	Registration Number	Date of Registration
34	Highly structural controlled multi-layered ceramics and method of making thereof	4576522	2010 Sep 3
35	Fabrication method of single crystal indium nitride nano tube	4576604	2010 Sep 3
36	Single crystal zinc phosphate nano tube and method for producing the same	4576607	2010 Sep 3
37	Biodegradable and pressure-sensitive material for medical use	4585743	2010 Sep 10
38	Method for forming polarization reversal	4587366	2010 Sep 17
39	Optical element consisting of lithium niobate single crystal wafer and method for producing lithium niobate single crystal body for the wafer	4590531	2010 Sep 24
40	Micro-patterning method	4595119	2010 Oct 1
41	Production of zinc oxide wafers	4610870	2010 Oct 22
42	Cerium phosphate nano tube and method for producing the same	4613342	2010 Oct 29
43	Method for producing optical element with back-switch phenomena and wavelength conversion element obtained by the method	4613347	2010 Oct 29
44	Optical wavelength conversion element and method for producing the same	4613358	2010 Oct 29
45	Ferroelectric material, two-color holographic recording medium and wavelength select filter	4614199	2010 Oct 29
46	The method for preparation of poly (malic acid) copolymers	4621885	2010 Nov 12
47	Zinc oxide phosphor	4635184	2010 Dec 3
48	Controlling method of orientation angle for components consisting of textured single crystals	4635189	2010 Dec 3
49	Method for inverting polarization by controlling charge and wavelength conversion element obtained by the method	4635246	2010 Dec 3

List of International Patent Registrations (October 2007 – December 2010):

No.	Name of Invention	Registration Number	Date of Registration
1	Method of inverting polarization by controlling defect density or degree of order of lattice points, and optical wavelength conversion element	German Patent 602004014399.5-08	2008 Jun 11
2	Method of inverting polarization by controlling defect density or degree of order of lattice points, and optical wavelength conversion element	UK Patent 1684112	2008 Jun 11
3	Wavelength conversion element having multi-gratings and light generating apparatus using said element, and wavelength conversion element having cylindrical ferroelectric single crystals and light generating apparatus using said element	US Patent 7403327	2008 Jul 22
4	Method of inverting polarization by controlling defect density or degree of order of lattice points, and optical wavelength conversion element	US Patent 7446930	2008 Nov 4
5	Hollow spheres and flakes of titanium dioxide and their production method	US Patent 7531160	2009 May 12
6	Cantilever based Sensors and Transducers	US Patent 7560070 B1	2009 Jul 14
7	High-performance all-solid lithium battery	Chinese Patent ZL200580018142.X	2009 Jul 15
8	Process for producing flaky titanium oxide capable of absorbing visible light	US Patent 7651675	2010 Jan 26
9	Nested Modulator	US Patent 7689067	2010 Mar 30
10	Solid electrolyte switching device, FPGA using same, memory device, and method for manufacturing solid electrolyte switching device	US Patent 77503332	2010 Jul 6
11	Biological low molecular weight derivatives	US Patent 7741454	2010 Jul 22
12	Scaffold for regenerating hard/soft tissue interface	Canada Patent 2489156	2010 Sep 7
13	Method of controlling average pore size of porous materials containing apatite/collagen composite fiber materials	Australia Patent 2005/230313	2010 Sep 16
14	Method of controlling average pore size of porous materials containing apatite/collagen composite fiber materials	Singapore Patent 125780	2010 Oct 29
15	Composite porous materials containing calcium phosphate and fabrication method of the same	European Patent 1642599	2010 Dec 1

Note: Additional MANA patents applications are not listed in this Appendix, because of privacy reason of the involved MANA researchers.

Appendix 8.11: Commendations

List of Commendations (October 2007 – December 2010):

Date	Prize	Prize Winner	Research for Commendation
2007 Oct	Poster Award at the Second International Symposium on Atomic Technologies	Shogo Sumitani, Motoi Oishi, Yukio Nagasaki	Nanobiomaterials-design of pH-sensitive PEGylated nanogels containing fluorinated compounds as tumor-specific smart 19F MRI probes
2007 Oct	Poster Award at the Second International Symposium on Atomic Technologies	Shunsuke Tomita, Hiroyuki Hamada, Yukio Nagasaki, Kentaro Shiraki	Artificial chaperon system of amphiphilic polymer in combination with small additives to prevent protein aggregation
2007 Nov	Days highlighted talk in MRS Fall Meeting 2007, Boston, USA	Somobrata Acharya	Ultra-thin Nanosheet Fabrication from Ultra-narrow PbS Nanowires
2007 Nov	SSSJ Review Paper Award	Kazuya Terabe, Tsuyoshi Hasegawa, Tomonobu Nakayama, Masakazu Aono	Atomic switch-a nano device using motion of atoms and ions
2007 Dec	Papers of Editors' Choice of Journal of the Physical Society of Japan	Shin Yaginuma, Katsumi Nagaoka, Tadaaki Nagao, Tomonobu Nakayama	Electronic structure of Ultrathin Bismuth Films with A7 and Black-Phosphorus-like Structures
2008 Jan	Best Cover Image, Competition of the Year 2007, Journal: Materials Today	Pedro Costa, Dmitri Golberg, Guoshen Shen, Masanori Mitome, Yoshio Bando	"Solar Flares", an image of a CdS nanobelt deformed inside a transmission electron microscope
2008 Jan	Best Poster Presentation Award at the Meeting of Special Postdoctoral Researchers Program, RIKEN, Japan	Satoshi Moriyama	Shell structures and spin configurations in carbon nanotube artificial atoms
2008 Feb	Khwarizmi International Award by IRST Iran, Laureate of KIA	Ajayan Vinu	Multifunctional Nanoporous Materials
2008 Feb	Poster Award at WPI-AIMR & IFCAM Joint Workshop	Genki Yoshikawa	Evaluation of Sensitivity and Selectivity of Piezoresistive Cantilever-Array Sensors
2008 Feb	Poster Award at the 18th Symposium of Materials Research Society of Japan	Toru Yoshitomi, Daisuke Miyamoto, Yukio Nagasaki	Synthesis of acetal-poly(ethyleneglycol)-b-poly(chloromethylstyrene) and application for functional bioimaging nanosphere
2008 Mar	Poster Award at the First International Symposium on Interdisciplinary Materials Science	Shogo Sumitani, Motoi Oishi, Yukio Nagasaki	Preparation and Characterization of Tumor-Specific Imaging Probes Utilizing the pH-sensitive PEGylated Nanogels Containing 19F Compounds
2008 May	Asian Excellent Young researcher Lectureship Award 2008, Chemical Society of Japan	Ajayan Vinu	Discovery of Mesoporous Carbon Nitride (MCN), Boron Nitride and Boron carbon Nitride

Date	Prize	Prize Winner	Research for Commendation
2008 May	Best Poster Award at the International Workshop on Nanomechanical Cantilever Sensors	Genki Yoshikawa	Evaluation of Sensitivity and Selectivity of Piezoresistive Cantilever-Array Sensors
2008 Jul	Award for Best Research by Young Scientist at International Conference on Carbon (Carbon 2008), Nagano, Japan	Pedro Costa, Yoshio Bando, Ujjal Gautam, Dmitri Golberg	Manipulating the current conductivity of halide-filled multi-walled carbon nanotubes
2008 Jul	Inoue Harushige Award of Japan Science and Technology Agency	Kenji Kitamura	Advancing Optical Technology by Controlling Single Crystal Defects
2008 Jul	2008 Tsukuba Prize	Takayoshi Sasaki, Minoru Osada	Synthesis of inorganic nanosheets and their organization into functional materials
2008 Aug	Best Oral Paper Award at IUMRS-ICEM 2008, Australia	Xiaosheng Fang, Yoshio Bando, Ujjal K Gautam, Dmitri Golberg	1D ZnS Nanostructures: Controlled Growth and Field-emission Applications
2008 Sep	SPSJ Hitachi Chemical Award	Masayoshi Higuchi	Discovery of electrochromic properties in organic-metallic hybrid Polymer and application to color electronic paper
2008 Sep	Outstanding Research Award of Magnetic Society of Japan	Kazuhiro Hono	Excellent research on the microstructure-property relationships of magnetic materials
2008 Sep	Fellow of the International Society of Electrochemistry	Kohei Uosaki	Scientific achievements within the field of electrochemistry
2008 Oct	Fellow of the American Ceramic Society	Yoshio Bando	Studies of inorganic nanotubes
2008 Oct	5th Osawa Award of The Fullerenes and Nanotubes Research Society	Yasuhiro Shirai	Design, Synthesis, and Testing of Fullerene-wheeled Nanocars
2008 Nov	IWDTF Young Researcher Award	Jun Chen	Study on carrier transport in high-K gate dielectric
2008 Dec	Award for Encouragement of Research in Materials Science at the IUMRS International Conference in Asia 2008	Alexei Belik	Effects of doping on structural, physical, and chemical properties of multiferroic $BiMnO_3$ and $BiCrO_3$
2008 Dec	MRS Best Poster Award at MRS Fall Meeting, Boston, USA	Naoki Fukata	Phosphorus Donors and Boron Acceptors in Silicon Nanowires Synthesized by Laser Ablation
2008 Dec	Award for Encouragement of Research in Materials Science at the IUMRS International Conference in Asia 2008	Pavuluri Srinivasu, Ajayan Vinu	Pore-size control of mesoporous materials using high temperature microwave treatment
2009 Jan	Journal of Materials Chemistry, Cover Image Winner	Junqing Hu, Yoshio Bando, Dmitri Golberg	Novel semiconductor nanowire heterostructures: synthesis, analysis, properties and applications
2009 Mar	Incentive Award for Excellent Presentation	Masato Nakaya, Yuji Kuwahara, Masakazu Aono, Tomonobu Nakayama	Ultra-high density data storage into a C_{60} thin film using an STM probe

Date	Prize	Prize Winner	Research for Commendation
2009 Mar	Excellent Poster Award, 3rd International Symposium on Atomic Technology (ISAT-3)	Shogo Sumitani, Motoi Oishi, Tatiana K. Bronich, Alexander V. Kabanov, Michael D. Boska, Yukio Nagasaki	Preparation and Characterization of pH-sensitive 19F-MRI Nano-probes Based on the PEGylated Nanogels
2009 Mar	CSJ Award for Young Chemists by the Chemical Society of Japan	Ajayan Vinu	Research on Nanoporous carbons and nitrides
2009 Apr	The Young Scientists' Prize, Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT)	Minoru Osada	Nanoscale structural control and novel physical properties in transition metal oxides
2009 May	Advanced Materials, Cover Image Winner	Xiosheng Fang (first author)	Single-crystalline ZnS nanobelts as ultraviolet-light UV sensors
2009 May	Journal of Materials Chemistry, Cover Image Winner	Ujjal Gautam, Yoshio Bando, Xiosheng Fang, Dmitri Golberg	Synthesis of metal-semiconductor heterojunctions inside carbon nanotubes
2009 May	Fellow of the Royal Society	James K. Gimzewski	Pioneering the use of the scanning tunneling microscope to image, characterize and manipulate molecules on surfaces
2009 May	2009 Honda Frontier Award, by the Honda Memorial Foundation	Kazuhiro Hono	Research on nano-structures and characterizations of metallic materials
2009 Jun	Best paper award of Japan Thermal Spraying Society in 2009	Jin Kawakita, Seiji Kuroda, Sachiko Hiromoto, Akiko Yamamoto, Norio Maruyama	Fabrication and mechanical properties of composite structure by Warm Spraying of Zr-base metallic glass
2009 Jun	Best Paper Award, 62th Japan Oxidative Stress Society	Kazuko Toh, Toru Yoshitomi, Aiki Marushima, Kensuke Suzuki, Hideo Tsurushima, Akira Matsumura, Yukio Nagasaki	Radical-containging Nanoparticle for Cerebral Ischemia-reperfution Damage
2009 Jun	Best Poster Award, 10th International Conference on Science and Technology of Nanotubes	Mingsheng Wang, Dmitri Golberg, Yoshio Bando	Interface dynamic behavior between carbon nanotube and metal electrode
2009 Jun	Advanced Functional Materials, Cover Image Winner	Chunyi Zhi (first author)	Towards highly thermo-conductive electrically insulating polymeric composites with boron nitride nanotubes as fillers
2009 Jul	Special Prize in 3rd Grand Prize for Japan MONOTSUKURI, by the Ministry of Education, Culture, Sports, Science and Technology (MEXT)	Kenji Kitamura	Commercialization of highly functional optical single crystals grown under defect density control and optical devices using them
2009 Jul	Academician of World Academy of Ceramics	Yoshio Sakka	Ceramic processing

Date	Prize	Prize Winner	Research for Commendation
2009 Jul	Best Poster Award, 38th Symposium on Polymer for Biomaterial Science	Toru Yoshitomi, Takashi Mamiya, Aki Hirayama, Yukio Nagasaki	Design of pH-sensitive Radical-containing Nanoparticle for Bioimaging of Oxidative Stress in vivo
2009 Aug	Advanced Functional Materials, Cover Image Winner	Tianyou Zhai (first author)	Characterization, cathodolumenescence and field-emission properties of morphology-tunable CdS micro/nanostructures
2009 Aug	The 41st Ichimura Award by the new technology development foundation	Daisuke Fujita	Development of active nanoprobe measurement technology under controlled environments
2009 Sep	Honorary Doctorate of the University of the Mediterranean, Aix-Marseille II, in France	James K. Gimzewski	Exploration of Creativity and Imagination in fields of Nanotechnology and its future Role on Society with emphasis on Nano-Neuromorphic Information Technology and Material Nanoarchitectonics
2009 Sep	JSCTA Award for Young Scientists	Kohsaku Kawakami	Thermal Analysis of Physical State of Crystalline/Grassy Pharmaceuticals
2009 Sep	Excellent Poster Award, The International Forum on Post-Genome Technologies (IFPT' 6)	Masaki Kubota, Keitaro Yoshimoto, Yukio Nagasaki	Advanced genome sequencing Completely stable streptavidin immobilized on magnetic beads in terms of thermal treatment cycles
2009 Sep	Japan Society for Analytical Chemistry Award for Younger Researchers	Jun Nakanishi	Fluorescence imaging of protein conformational change in living cells and photopatterning of cells
2009 Oct	BCSJ Award of the Chemical Society of Japan	Hiroyuki Noda, Hiromitsu Uehara, Masaaki Abe, Takayuki Michi, Masatoshi Osawa, Kohei Uosaki, Yoichi Sasaki	In situ Scanning Tunneling Microscopy Observation of Metal-Cluster Redox Interconversion and CO Dissociation Reactions at a Solution/Au(111) Interface
2009 Oct	The Richard M. Fulrath Award from American Ceramics Society	Naoki Ohashi	Contribution to thin film synthesis and properties of functional ceramics
2009 Oct	Fellow of the Electrochemical Society	Kohei Uosaki	Scientific achievements within the field of electrochemistry
2009 Nov	MNC 2008 Award for Most Impressive Presentation Award	Yuji Okawa, Daisuke Takajo, Tsuyoshi Hasegawa, Masakazu Aono	Fabrication of nanostructures composed of copper-phthalocyanine and diacetylene molecules
2009 Nov	The 4th International Symposium of Atomic Technology, The Best Poster Award	Shogo Sumitani, Motoi Oishi, Yukio Nagasaki	Enhanced Stability of Biodegradable Polymeric Micelles Encapsulating Boron Cluster for Boron Neutron Capture Therapy
2009 Dec	Best Poster Award at Winter School on the Chemistry and Physics of Materials	Mamiko Kawakita, Jin Kawakita, Yoshio Sakka	Orientation dependence of energy level in anatase TiO_2 polycrystalline aggregates
2009 Dec	Dalton Transactions, Hot Article	Takao Mori (first author)	Effect of Zn doping on improving crystal quality and thermoelectric properties of borosilicides

Date	Prize	Prize Winner	Research for Commendation
2009 Dec	Award of Excellence in the field of chemical sciences from the Indian Scociety of Chemists and Biologists (ICSB)	Ajayan Vinu	Research on nanoporous carbons and nitrides
2009 Dec	Advanced Materials, Cover Image Winner	Mingsheng Wang, Dmitri Golberg, Yoshio Bando	Multi-branched junctions of carbon nanotubes via metal particles
2010 Jan	Elected in the Advisory Board of the World Academy of Ceramics	Enrico Traversa	Electroceramics
2010 Jan	Dr. Sistala Kameswari Young Scientist award from the Catalysis Society of India	Ajayan Vinu	Multifunctional Nanoporous Materials
2010 Jan	Poster Award at the 21th GelSympo, Japan	Takeshi Yamazaki, Akihiko Kikuchi, Motoi Oishi, Mariko Shiba, Yukio Nagasaki	Enhanced Serum Cholesterol Reduction in Vivo by PEGylated Nanogels Containing Quaternary Polyamine Core as a Bile Acid Adsorbent
2010 Feb	Journal Issue Cover Image Winner	Xiaosheng Fang (first author), Yoshio Bando, Dmitri Golberg	An efficient way to assemble ZnS nanobelts as ultraviolet-light sensors with enhanced photocurrent and stability
2010 Feb	Research highlighted in Nanotechnology Thought Leaders Series	Dmitri Golberg	Boron nitride nanotubes and nanosheets: Introduction and recent advances
2010 Feb	Best Presentation Award at the 10th RGM1 Meeting, Japan	Yutaka Ikeda, Yukio Nagasaki	Evaluation of the tumor targeting potency of 5-aminolevulinic acid
2010 Feb	Inoue Research Aid for Young Scientists	Yusuke Yamauchi	Synthesis and characterization of mesoporous metals and related nanomaterials from lyotropic liquid crystalline media
2010 Mar	Marubun Science Award	Masayoshi Higuchi	Development of organic-metallic hybrid polymer materials and their application to electronics
2010 Mar	Young Scientist Award of the Physical Society of Japan	Masanori Kohno	Spinons and triplons in spatially anisotropic frustrated antiferromagnets
2010 Mar	American Chemical Society Nano Web Highlight	Chun Li (first author), Yoshio Bando, Dmitri Golberg	Current imaging and electromigration-induced splitting of individual GaN nanowires as revealed by conductive atomic force microscopy
2010 Mar	Chemical Society of Japan Award, Chemical Society of Japan	Kohei Uosaki	In situ nanoscale structural determination and construction of functional phases at solid/liquid interfaces
2010 Mar	Young Investigator award, The Oxygen Club of California Award	Toru Yoshitomi, Yukio Nagasaki	Design of pH-sensitive polymeric micelle possessing reduced forms of TEMPO for imaging of ROS
2010 Apr	Student Presentation Award 2010, Chemical Society of Japan	Hitoshi Fukumitsu	Characterization of Pt Species Deposited on and in Organic Molecular Layers by Polarization-Dependent Total Reflection Fluorescence XAFS

Date	Prize	Prize Winner	Research for Commendation
2010 Apr	Honorary Doctorate from the University of Strathclyde, Glasgow, Scotland	James K. Gimzewski	For the development of the use of scanning tunnelling microscopy (STM) in the imaging of molecules and the use of the method to identify cancerous cells in patients with lung, breast and pancreatic cancers
2010 Apr	American Chemical Society Nano Web Highlight	Jing Lin (first author), Yoshio Bando, Dmitri Golberg	Synthesis of In_2O_3 nanowire decorated Ga_2O_3 nanobelt heterostructures and their electrical and field-emission properties
2010 Apr	NIMS President's Research Achievement Award 2010	Tsuyoshi Hasegawa, Kazuya Terabe	Significant contributions to the area of the Atomic Switch: from its invention and fundamental research, to studies of its practical use
2010 Apr	Young Scientist's Prize for the Commendation of Science and Technology by the Ministry of Education, Culture, Sports, Science and Technology (MEXT)	Katsunori Wakabayashi	Research for the nano-scale effect on electronic properties of graphene
2010 Apr	Award for the best poster, The 3rd Hsinchu - Tsukuba Joint Workshop on Nano and Bio-related Materials and Technologies	Kazuhiro Yamaguchi, Naoki Kanayama, Yukio Nagasaki	Nitric oxide photo-generative polymer micelle for new cancer therapy
2010 Apr	The Ceramic Society of Japan Award for Awards for Advancements in Ceramic Science and Technology	Yusuke Yamauchi	Mesostructural controls by utilizing strong magnetic field and confined spaces
2010 Apr	Honorary Doctorate from the University of Strathclyde, Glasgow, Scotland	James K. Gimzewski	For the development of the use of scanning tunnelling microscopy (STM) in the imaging of molecules and the use of the method to identify cancerous cells in patients with lung, breast and pancreatic cancers
2010 May	Advanced Functional Materials, Cover page	Corrado Mandoli, Francesca Pagliari, Stefania Pagliari, Giancarlo Forte, Paolo Di Nardo, Silvia Licoccia, Enrico Traversa	Stem Cell Aligned Growth Induced by CeO_2 Nanoparticles in PLGA Scaffolds with Improved Bioactivity for Regenerative Medicine
2010 May	Tohoku University, Institute for Materials Research (IMR), Collaborative Research Award	Takao Mori	Development of Novel High Temperature Thermoelectric Materials
2010 May	JSPM Award for Distinguished Achievements in Research	Yoshio Sakka	Texture control of feeble magnetic ceramics by colloidal processing in strong magnetic field
2010 May	JSPM Award for Innovatory Research	Cedric Tassel, Yoshihiro Tsujimoto, Hiroshi Kageyama, Kazuyoshi Yoshimura	Synthesis of novel infinite layer iron oxide $SrFeO_2$ by low-temperature reduction method

Date	Prize	Prize Winner	Research for Commendation
2010 May	Poster Award at the 7th International Symposium on Intrinsic Josephson Effects and Plasma Oscillations in High T_c Superconductors	Manabu Tsujimoto	Discovery of the THz radiation from inner branches of the I-V characteristic curve and the spectra measurement.
2010 Jun	The Adhesion Society of Japan	Tetsushi Taguchi	Development of tissue adhesives for the prevention of catheter infection
2010 Jun	Presentation at 11th ICAM 2009 & 8th Brazilian MRS Meeting 2009, reported in MRS Bulletin (2010)	Enrico Traversa	Fuel Cells for Sustainable Energy Production: With or Without Hydrogen
2010 Jun	Presentation at 11th ICAM 2009 & 8th Brazilian MRS Meeting 2009, reported in MRS Bulletin (2010)	Enrico Traversa	Tuning Hierarchical Architectures of 3D Polymeric Scaffolds for Cardiac Tissue Engineering
2010 Jun	Poster Award at the 63th meeting for the Society for Free Radical Research Japan	Kazuhiro Yamaguchi, Naoki Kanayama, Yukio Nagasaki	PEGylated polymer micelle-based nitric oxide (NO) photodonor with NO-mediated antitumor activity
2010 Jul	Advanced Functional Materials paper, reported in MRS Bulletin (2010)	Corrado Mandoli, Francesca Pagliari, Stefania Pagliari, Giancarlo Forte, Paolo Di Nardo, Silvia Licoccia, Enrico Traversa	Stem Cell Aligned Growth Induced by CeO_2 Nanoparticles in PLGA Scaffolds with Improved Bioactivity for Regenerative Medicine
2010 Aug	Best Poster Award at the 18th International Vacuum Congress IVC-18	Daisuke Fujita, Tsuyaku Kumakura, Keiko Onishi, Keisuke Sagisaka	High temperature in situ AFM/STM observation of decomposition and cleaning process of ultrathin SiO_2 films on Si(111) surfaces in ultra-high vacuum
2010 Aug	Journal Issue Cover Image Winner	Tianyou Zhai (first author), Yoshio Bando, Dmitri Golberg	Morphology-tunable In_2Se_3 nanostructures with enhanced electrical and photoelectrical performances via sulfur doping
2010 Sep	Best Paper Award of the Japan Institute of Metals, Section Microstructures	Naoyuki Kawamoto	Precise resistivity measurements of submicrometer-sized materials by using TEM with microprobes
2010 Sep	Mitsubishi Chemical Award, The Society of Polymer Science	Yukio Nagasaki	Engineering of poly(ethylene glycol) chain-tethered surfaces
2010 Sep	Small paper, reported in the MRS website at Materials News	Simone Sanna, Vincenzo Esposito, Antonello Tebano, Silvia Licoccia, Enrico Traversa, Giuseppe Balestrino	Enhancement of Ionic Conductivity in SDC/YSZ Heteroepitaxial Structures
2010 Sep	Tsukuba Encouragement Prize forYoung Researchers	Tetsushi Taguchi	Development of tissue adhesive material and technology for the next generation of medicine

Date	Prize	Prize Winner	Research for Commendation
2010 Sep	Poster Award at the 4th AEARU Advanced Materials Workshop on Artificial and Self-Organized Nanostructure Sciences and Nano-Technologies for the Sustainable World	Manabu Tsujimoto, Kota Deguchi, Naoki Orita, Takashi Koike, Ryo Nakayama, Takashi Yamamoto, Hidetoshi Minami, Takanari Kashiwagi, Kadowaki Kadowaki	Study on the Geometrical Resonance in a Nearly Square Mesa and the Frequency Spectrum from the Inner Branches of Intrinsic Josephson Junctions in $Bi_2Sr_2CaCu_2O_{8+\delta}$
2010 Sep	Lectureship Award 2010 of the Japanese Photochemistry Association	Kohei Uosaki	Construction of Organic Monolayers on Solid Surfaces and Their Photo Functions
2010 Sep	Highlighted in Nikkan Kougou Shinbun and Nikkei Sangyo Shimbun	Xianlong Wei, Mingsheng Wang, Yoshio Bando, Dmitri Golberg	Tensile tests on individual multi-walled boron nitride nanotubes
2010 Oct	Polymer Chemistry Poster Prize at International Symposium on Stimuli-Responsive Materials	Youhei Kotsuchibashi, Mitsuhiro Ebara, Kazuya Yamamoto, Takao Aoyagi	Stimuli-responsive Self-assembly System That Can Form and Stabilize Nanoparticles at the Desired Size by Simple Mixing and Heating/Cooling of the Selected Block Copolymers
2010 Oct	Cover page of Journal, Macromolecular Bioscience	Corrado Mandoli, Barbara Mecheri, Giancarlo Forte, Francesca Pagliari, Stefania Pagliari, Felicia Carotenuto, Roberta Fiaccavento, Antonio Rinaldi, Paolo Di Nardo, Silvia Licoccia, Enrico Traversa	Thick Soft Tissue Reconstruction on Highly Perfusive Biodegradable Scaffolds
2010 Nov	Energy and Environmental Science paper, reported on the Materials News website of Wiley	Lei Bi, Emiliana Fabbri, Ziqi Sun, Enrico Traversa	A Novel Ionic Diffusion Strategy to Fabricate High-Performance Anode-Supported Solid Oxide Fuel Cells (SOFCs) with Proton-Conducting Y-Doped $BaZrO_3$ Films
2010 Nov	Advanced Functional Materials paper, reported in the Materials News website of Wiley	Emiliana Fabbri, Lei Bi, Hidehiko Tanaka, Daniele Pergolesi, Enrico Traversa	Chemically Stable Pr an Y Co-Doped Barium Zirconate Electrolytes with High Proton Conductivity for Intermediate Temperature Solid Oxide Fuel Cells
2010 Nov	The research-related interview broadcasted on the 1st State Channel of Russian TV (ORT)	Dmitri Golberg	Boron nitride nanotubes
2010 Nov	Young Ceramist Best Presentation Award at the 26th International Japan-Korea Seminar on Ceramics	Sachiko Hiromoto	Formation of Hydroxyapatite Coatings on Bioabsorbable Magnesium to Improve its Corrosion Resistance
2010 Nov	Young Investigator Award, 2010 International Symposium of Materials on Regenerative Medicine	Hongxu Lu	Development of Funnel-Like Scaffolds for Cartilage Tissue Engineering Using Embossing Ice Particulate Templates

Date	Prize	Prize Winner	Research for Commendation
2010 Nov	Electrical Science and Engineering Award	Kazuhito Tsukagoshi	Development of Organic transistor based on metal/organic interface control
2010 Nov	Wilhelm Friedrich Bessel Award for the year 2010 by the Alexander von Humboldt foundation	Ajayan Vinu	Outstanding research accomplishments in the field of nanoporous materials
2010 Nov	Indian Society of Chemists and Biologists Award for Excellence 2010	Ajayan Vinu	Outstanding research accomplishments in the field of nanoporous materials
2010 Nov	Young Investigator Award, 17th Annual meeting of the society for free radical biology and medicine, Orlando, Florida	Toru Yoshitomi, Yukio Nagasaki	Design of redox imaging nanoprobe using nitroxyl radical containing nanoparticle
2010 Nov	Featured highlight on MaterialsViews.com	Mingsheng Wang, Yoshio Bando, Dmitri Golberg	Superstrong low resistant carbon nanotube–carbide–metal nanocontacts
2010 Nov	Research Spotlight on Nanowerk.com	Haibo Zeng (first author), Yoshio Bando, Dmitri Golberg	The rise of “white” graphene
2010 Dec	Feynman Prize	Masakazu Aono	His pioneering and continuing work, including research into the manipulation of atoms, the multi-probe STM and AFM, the atomic switch, and single-molecule-level chemical control including ultradense molecular data storage and molecular wiring
2010 Dec	Nice Step Researcher 2010	Katsuhiko Ariga	World excellent contribution on application of supramolecular materials
2010 Dec	TX Technology Showcase, Best research in frontier area	Katsuhiko Ariga	Auto-modulated drug derivery
2010 Dec	Science and Technology of Advanced Materials, Best Paper Prize	Katsuhiko Ariga, Jonathan P. Hill, Michael V. Lee, Ajayan Vinu, Richard Charvet, Somobrata Acharya	Challenges and breakthroughs in recent research on self-assembly
2010 Dec	Best Collaborative Research Award, 10th TX Technology Showcase in Tsukuba	Naoki Kawazoe, Guoping Chen	Development of synthetic polymer-collagen hybrid meshes for regenerative medicine
2010 Dec	Nature Materials paper, reported in MRS Bulletin	Daniele Pergolesi, Emiliana Fabbri, Allessandra D’Epifanio, Elisabeta Di Bartolomeo, Antonello Tebano, Simone Sanna, Silvia Licoccia, Giuseppe Balestrino, Enrico Traversa	High Proton Conduction in Grain-Boundary-Free Yttrium-Doped Barium Zirconate Films Grown by Pulsed Laser Deposition

Date	Prize	Prize Winner	Research for Commendation
2010 Dec	Award at the 25th Kanto Area Regional Meeting of Society for Free Radical Research Japan, SFRR Japan	Toru Yoshitomi, Aki Hirayama, Yukio Nagasaki	Novel Nano-therapy of renal ischemia-reperfusion injury
2010 Dec	Materials featured highlight, Nature Publishing Group Asia	Haibo Zeng (first author), Yoshio Bando, Dmitri Golberg	White graphenes: Boron nitride nanoribbons via boron nitride nanotube unwrapping

Appendix 8.12: International Cooperation

Cooperation under Memorandum of Understanding (MOU) Agreements:

List of MOU agreements of MANA with overseas institutions signed between 2008 and 2010.

Organization	Country	Date of Agreement
Kent State University, Department of Chemistry	USA	2008 Jan 10
Rensselaer Polytechnic Institute, Chemistry and Biological Engineering	USA	2008 Feb 28
University of California Los Angeles (UCLA)	USA	2008 Mar 24
Georgia Institute of Technology (GIT) Center for Nanostructure Characterization	USA	2008 May 6
CNRS, Centre d'elaboration de materiaux et d'etudes structurales (CEMES)	France	2008 May 30
University of Cambridge, Nanoscience Centre	UK	2008 Jun 20
Indian Institute of Chemical Technology (IICT)	India	2008 Jul 3
University of Basel, Institute of Physics, National Center of Competence for Nanoscale Science,Institute of Physics	Switzerland	2008 Jul 20
Yonsei University Korea	Korea	2008 Sep 1
Indian Institute of Science, Education and Research	India	2008 Dec 19
University of Karlsruhe, Supramolecular Chemistry Group at the Institute for Inorganic Chemistry	Germany	2009 Jan 29
Fudan University, Department of Chemistry, New Energy and Materials Laboratory (NEML)	China	2009 Mar 16
Indian Institute of Technology Madras, National Centre for Catalysis Research (NCCR)	India	2009 Apr 5
University of Cologne Inorganic and Materials Chemistry at the Institute of Inorganic Chemistry	Germany	2009 May 28
Ecole Polytechnique Federale de Lausanne (EPFL), Institute of Microengineering	Switzerland	2009 Jul 20
University of Rome Tor Vergata, Center for Nanoscience & Nanotechnology & Innovative Instrumentation (NAST)	Italy	2009 Jul 30
University of Heidelberg, Kirchhoff Institute of Physics	Germany	2009 Aug 31
Loughborough University	UK	2009 Oct 28
Lawrence Berkeley National Laboratory	USA	2010 Feb 9
University of Valenciennes	France	2010 May 20

Organization	Country	Date of Agreement
Friedrich-Alexander University, Erlangen-Nürnberg	Germany	2010 June 21
Fudan University, Department of Materials Science	China	2010 July 23
EWHA Womans University Seoul, Dep. of Chemistry and Nanoscience	Korea	2010 Aug 27
Karlsruhe Institute of Technology	Germany	2010 Sep 16
Univesité de la Méditerranée, Marseille	France	2010 Sep 20
Anhui Key Laboratory of Nanomaterials and Nanostructures	China	2010 Oct 6
Multidisciplinary Center for Development of Ceramic Materials	Brazil	2010 Oct 26

Appendix 8.13: Media Coverage

List of Media Coverage of MANA (September 2007 – March 2011):

Date	Media	Description
2007 Sep 14	Science	Dr. Masakazu Aono (MANA Director-General) was interviewed on interdisciplinary collaboration at MANA
2007 Dec 1	ACS Nano	An interview with Dr. Masakazu Aono (MANA Director-General) about “Leader in Atomic Scale Control and Nanomanipulation” was published in ACS Nano
2008 Apr 28 2008 May 2	World Times, Joyo Newspaper, Science News	Dr. Masayoshi Higuchi (MANA Independent Scientist) succeeded in developing Multi-Color Electronic Paper using an organic/metal hybrid polymer
2008 Jun 9	Science News	Dr. Yusuke Yamauchi (MANA Independent Scientist) succeeded in fabricating mesoporous metal with a giant mesocage structure using an electrochemical technique
2008 Jul 2 2008 Jul 11	Nikkei News, Science News	Dr. Kenji Kitamura (MANA PI) won the 2008 Inoue Harushige Prize for “Highly functional single crystals for optics grown by a method under defect control”
2008 Jul 11 2008 Jul 15 2008 Jul 22 2008 Jul 25 2008 Nov 22	The Chemical Daily, Joyo Newspaper, The Chemical Times, Nikkan Kogyo Shimbun, Science News, Asahi Shimbun	Success in Development of Novel Photocatalyst with High Activity in Visible Light
2008 Jul 16 2008 Oct 8	Nikkan Kogyo Shimbun, Mainichi Newspapers, Sankei Shimbun, Ibaraki Shimbun, Nikkei News, Joyo Newspaper	Dr. Takayoshi Sasaki (MANA PI) and Dr. Minoru Osada (MANA Scientist) won the 2008 Tsukuba Prize for “Synthesis of inorganic nanosheets and their organization into functional materials”
2008 Jul 17	Nikkei News	Dr. Jinhua Ye (MANA PI) and the WPI program were introduced in “Rapid rise of NEW Chinese Abroad”
2008 Jul	Shikizai	Introduction of MANA as WPI program
2008 Sep 26	Denki Shimbun	Focus on the Sunlight basic research
2008 Dec 1	Physics Today	Japan aims to internationalize its science enterprise
2008 Dec 3	Physics Today	The work of Dr. Masakazu Aono (MANA Director-General) and Dr. Yuji Okawa (MANA Scientist) on "the creation of single conductive polymer chains at designated positions by initiating chain polymerization using a scanning tunneling microscope tip" appeared on the cover of the December 2008 issue of Physics Today
2008 Dec 11	NHK (TV)	MANA as a WPI program was introduced in “Good Morning, Japan”
2008 Dec 11 2008 Dec 12	Nikkan Kogyo Shimbun, Nikkei News	NIMS/MANA and Waseda University (Faculty of Science and Engineering) concluded a “Joint Doctoral Program Agreement”
2009 Apr 12	Yomiuri Shimbun	Dr. Ajayan Vinu (MANA Independent Scientist) appeared in an article on the research environment for foreign researchers at MANA
2009 Apr 15	Asahi Shimbun	Dr. Liyuan Han (MANA PI) and Dr. Jinhua Ye (MANA PI) were featured in a report on the lives of researchers
2009 May 13 2009 May 20	Fuji TV	Dr. Masanori Kikuchi (MANA Scientist) and Dr. Guoping Chen (MANA Scientist) explained about” the possibility of regenerative medicine” in the Lab-meister TV Program “Can human body be generated like a newt?”

Date	Media	Description
2009 Jun 24 2009 Jul 10	Asahi Shimbun Kagaku Shimbun	A study by Dr. Yusuke Yamauchi (MANA Independent Scientist) and colleagues on platinum nanoparticles with an ultra-fine candy-ball-like structure was featured in two reports
2009 Jul 24	Science News	Dr. Katsuhiko Ariga (AMAN PI) was interviewed on his research of functional material which can automatically switch between ON and OFF states without additional stimuli
2009 Aug 27	Fuji TV	Dr. Tsuyoshi Hasegawa (MANA PI) and Dr. Masayoshi Higuchi (MANA Independent Scientist) appeared in the Kyodo TV program “Lab Meister: In Search for Future of TV and PC”
2009 Sep 4	United States National Public Radio (NPR)	Prof. James K. Gimzewski (MANA PI) spoke about “How Tiny Nanoparticles Are Transforming Technology” with host Ira Flatow and took calls from listener’s on NPR’s weekly program “Science Friday”
2009 Sep 29	Nihon Keizai Shimbun	Dr. Yoshio Bando (MANA Chief Operating Officer) was interviewed on the internationalization at MANA and ICYS
2009 Nov 11	NHK TV	Outreach activities of MANA were featured in the NHK program "Ohayou Nippon (Good Morning Japan)
2009 Dec 3	NIMS NOW	The first two years of the WPI program MANA "Progress in Internationalization" were featured in Volume 7, Number 9 of NIMS NOW International
2009 Dec 14	Nano-Magazine	An interview with Prof. James K. Gimzewski (MANA PI) appeared in Issue 7 of Nano-Magazine (Institute of Nanotechnology, UK)
2010 Jan 31 2010 Feb 4	NHK BS-1 TV NHK BS-hi TV	In the TV program “The proposal for the future - Nanotech revolution changes the world”, Prof. James K. Gimzewski (MANA PI) was interviewed on the future of nanotech and his collaborative work of science and art
2010 Aug 9	Nikkei Online	Research results of Dr. Ajayan Vinu (MANA Independent Scientist) on “a new fabrication of gold nanoparticles by self-assembly of nanoporous materials”were reported in Nikkei Online
2010 Oct 11	Sankei News, Nikkei Online	Research of Dr. Daniele Pergolesi (MANA Scientist), Dr. Emiliana Fabbri (MANA Scientist) and Dr. Enrico Traversa (MANA PI) on "Record High Proton Conduction in Grain Boundary Free Films for Micro-Solid Oxide Fuel Cells” was introduced on Sankei News and Nikkei Online
2010 Oct 22	Nikkei Online	Research on “Development of Exhaust Gas Catalyst with Thermal Agglomeration Resistance 10x Higher than Conventional Materials”conducted by Dr. Katsuhiko Ariga (MANA PI) and Dr. Hideki Abe (NIMS Advanced Electronic Materials Center) was introduced in the October 22 issue of Nikkei Online
2010 Nov 1	Essential Science Indicators (Thomson Reuters)	A paper of Dr. Katsuhiko Ariga (MANA PI) published in the March 2008 issue of STAM was ranked as "No. 1 Hot Paper in Materials Science"
2010 Nov 1	Science Watch (Thomson Reuters)	Dr. Lionel Vayssieres (MANA Independent Scientist) was interviewed on his highly cited paper, which is among the top 1% of papers published in the field of Chemistry over the past decade
2011 Jan 1	NHK TV	The researchers Dr. Jinhua Ye (MANA PI) and Dr. Yusuke Yamauchi (MANA Independent Scientist) were featured in the NHK Special program "Can Japan Survive?"
2011 Feb 4	NHK TV ECO channel	Research of Dr. Jinhua Ye (MANA PI) on a new visible-light sensitive photosynthesis catalyst was introduced in the NHK Eco Channel
2011 Feb 28	NHK English radio	Research of Dr. Tsuyoshi Hasgawa (MANA PI) on "Development of Novel Transistor with Combined Logic and Memory Functions with Power Consumption Reduced to One-Millionth that of Conventional Devices" was introduced in the NHK English radio program "Japan and World Update"

Appendix 8.14: Visitors at MANA

List of Visitors at MANA (January – December 2010):

Date (2010)	Name	Affiliation
Jan 6 - 9	Prof. Omar Yaghi	University of California, Los Angeles (UCLA), USA
	Dr. Adam Stieg, Scientific Director	University of California, Los Angeles (UCLA), USA
Jan 6 - 23	Prof. James K. Gimzewski	University of California, Los Angeles (UCLA), USA
Jan 6 - Feb 11	Prof. Chia-Wen Wu	National Taiwan University, Taiwan
Jan 10 - Mar 25	Dr. Marco Fronzi	University of Sydney, Australia
Jan 12	Ong Boon Hoong, Senior Lecturer	Electronics Majoring in Nanotechnology of Multimedia University, Malaysia
	Wai Yin Ling, Director	Malaysia Multimedia University (MESCORP), Malaysia
Jan 12 - 13	Prof. Galen D. Stucky	University of California, USA
Jan 13 - 15	Dr. Adam Stieg, Scientific Director	University of California, Los Angeles (UCLA), USA
Jan 17 - Apr 16	Prof. Patricia Campana	University of Sao Paulo, Brazil
	Prof. Daniel Zanetti de Florio	Universidade Federal do ABC, Brazil
Jan 22	Prof. Nava Setter	École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
	Prof. Helena Van Swygenhoven	École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
	Prof. Harry Tuller	Department of Materials Science and Engineering, Massachusetts Institute of Technology, USA
	Dr. Giulia Tomba	Institute of Industrial Science (IIS), University of Tokyo, Japan
Jan 25	Zakya Kafafi, Director	Division of Material Research, National Science Foundation, USA
	Kazuko Shinohara, Scientific Affairs Specialist	US Embassy, USA
Jan 27	Prof. Andrew Briggs	Department of Materials, University of Oxford, UK
	Dr. Kathrin Dörr	Leibniz Institute for Solid State and Materials Research Dresden (IFW), Germany
Feb 1 - Mar 11	Prof. James K. Gimzewski	University of California, Los Angeles (UCLA), USA
Feb 4	Prof. Tien-Yau Luh	National Taiwan University, Taiwan
Feb 8 - Mar 14	Dr. Lenka Hanykova	Department of Macromolecular Physics, Charles University, Czech Republic
Feb 14	Prof. Annabella Selloni	Department of Chemistry, Princeton University, USA
Feb 15	Huub Salemink, Vice Chairman	Kavli Institute of Nanoscience, Delft University of Technology, The Netherlands
Feb 15 - May 14	Dr. Giancarlo Forte	University of Roma Tor Vergata, Italy
Feb 16	Prof. Anders Karlsson	Embassy of Sweden, Tokyo, Japan
	Vladimir N. Chuvildeev, Deputy Director	Research Physical-Technical Institute of Nizhny Novgorod, Russia
	Prof. Katsuyoshi Kobayashi	Department of Physics, Ochanomizu University, Japan
Feb 18 - 19	Prof. Tom Wu	School of Physics & Mathematical Science, Nanyang Technological University, Singapore
Feb 19	Dr. James Owen	University of Geneva, Switzerland
Feb 24	Prof. R.P.H.Chang, Director	Department of Chemistry, Materials Research Institute, Northwestern University, USA

Date (2010)	Name	Affiliation
Feb 24	Emily Weiss, Director	Department of Chemistry, Materials Research Institute, Northwestern University, USA
Feb 24 - 26	Sourav Pal, Scientist and Head	National Chemical Laboratory Pune, India
Feb 25	Prof. P. Knauth	University of Provence, France
	Prof. M.L.Di Vona	University of Rome, Italy
Feb 26	Prof. Eunkyoung Kim	Yonsei University, Korea
Feb 26 - Apr 3	Prof. John A. Kilner	Imperial College London, UK
Feb 28 - Mar 5	Prof. Christian Joachim	Center for Material Elaboration & Structual Studies (CEMES) - CNRS, Toulouse, France
Feb 28 - May 27	Dr. Riad Nechache	Quebec University, Canada
Mar 1 - 6	Prof. Horst Hahn	Institute for Nanotechnology, Germany
Mar 2 - 5	Prof. C.N.R.Rao, President	Jawaharlal Nehru Centre for Advanced Scientific Research, India
Mar 2 - 6	Prof. Manfred Rühle	Max Planck Institute, Germany
Mar 2 - 8	Prof. Anthony Cheetham	Cambridge University, UK
Mar 2 - 12	Prof. Heinrich Rohrer, MANA Advisory Baord	WPI Advanced Institute for Materials Research (WPI-AIMR), Sendai, Japan
Mar 3	Prof. Kohei Uosaki	University of Hokkaido, Japan
Mar 3 - 5	Prof. Louis Schlapbach	Former President of EMPA (Eidgenössische Materialprüfungs- und Forschungsanstalt), Switzerland
	Prof. Tetsuya Osaka	Waseda University, Japan
	Prof. Myongsoo Lee	Department of Chemistry, College of Natutal Sciences, Seoul National University, Korea
	Prof. Joachim P. Spatz	Max Planck Institute for Metals Research and University of Heidelberg, Germany
	Prof. Tadahiro Komeda	Tohoku University, Japan
	Dr. Hirokatsu Miyata	Canon Inc., Japan
	Prof. Shiroh Futaki	Kyoto University, Japan
	Prof. Toshiaki Enoki	Tokyo Institute of Technology, Japan
	Prof. Toshio Kuroki	Japan Science and Technology Agency (JST), Japan
	Prof. Gunzi Saito	Meijo University, Japan
	Prof. Takehiko Ishiguro	Doshisha University, Japan
Mar 3 - 6	Prof. Zhong Lin Wang	School of Materials Science and Engineering, Georgia Institute of Technology, USA
Mar 4 - 5	Prof. Morinobu Endo	Shinshu University, Japan
Mar 4 - 6	Prof. Yoshio Nishi	Stanford University, USA
Mar 4 - Apr 2	Prof. Fumio S.Ohuchi	Department of Materials Science and Engineering, University of Washington, USA
Mar 4 - Apr 3	Prof. Francesca Cavalieri	University of Roma Tor Vergata, Italy
Mar 7 - 13	Prof. Peter Vettiger	IMT, EPFL, Switzerland
Mar 7 - Apr 3	Prof. Nicola Marzai	University of Oxford, UK
Mar 7 - May 28	Prof. Jiri Malek, Rector	University of Pardubice, Czech Republic
Mar 8	Prof. Alex Jen	Department of Materials Science and Engineering, University of Washington, USA
Mar 9 - 19	Dr. David Bowler	University College London (UCL), UK
Mar 14 - 17	Prof. Babu Sudarsanam Suresh	Department of Industrial & Systems Engineering, Ohio State University, USA

Date (2010)	Name	Affiliation
Mar 14 - 20	Dr. Patrick Sit	Department of Chemistry, Temple University, Philadelphia, USA
Mar 14 - 27	Prof. Harry L. Tuller	Massachusetts Institute of Technology (MIT), USA
Mar 18	Prof. Po-Wen Chiu Hua	Department of Electrical Engineering, National Tsing University, Taiwan
Mar 22 - 25	Dr. K.V.R. Chary	Indian Institute of Chemical Technology (IICT), Hyderabad, India
	Dr. Kallu Rajender Reddy	Indian Institute of Chemical Technology (IICT), Hyderabad, India
Mar 23	Stephen Aldersley, CEO	Goodfellow Cambridge Ltd, UK
	Jeff Chamberlain, Representative Office	Goodfellow Cambridge Ltd, UK
Mar 25 - Apr 10	Prof. Stefan Goedecker	University of Basel, Switzerland
Mar 29 - May 1	Prof. Federico Rosei	Quebec University, Canada
Mar 30	Dr. Fernando Briones	Physics Instituto de Microelectronica de Madrid (CNM -CSIC), Spain
Apr 1 - 21	Dr. David McCarthy	University of Canterbury, New Zealand
Apr 15 - 16	Prof. Jin-Ho Choy	Ewha Womans University, Korea
Apr 18 - 29	Dr. Lev Bulaevskii	Los Alamos National Laboratory, USA
Apr 21	David K. Kahaner, Founding Director	Technology Information Program (ATIP), USA
	Tetsuo Satoh	Technology Information Program (ATIP), Japan
Apr 22 - 28	Dr. Alexei Koshelev	Argonne National Laboratory, USA
Apr 25 - Jun 5	Dr. Sharali Malik	Institute of Nanotech. Karlsruhe GmbH, UK
Apr 26 - 29	Dr. Ulrich Welp	Argonne National Laboratory, USA
Apr 27	Vanney Beunau	École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
May 9 - Jul 10	Dr. B.V. Subba Reddy	IICT Hyderabad, India
May 12 - 18	Prof. Annie Pawell	University of Karlsruhe, Germany
May 12 - Aug 6	Dr. Petre Badica	National Institute of Materials Physics (INCDFM), Romania
May 14	Prof. Agneta Richter-Dahlfors	Karolinska Institute, Gothenburg University, Sweden
	Prof. May Griffith	Linköping University, Sweden
	Prof. Mamoun Muhammed	Royal Institute of Technology (KTH), Sweden
	Prof. Jonas Tegenfeldt	Gothenburg University, Sweden
	Prof. Peter Thomsen	University of Gothenburg, Sweden
	Prof. Alex Evilevitch	Lund University, Sweden
	Prof. Andreas Nyström	Karolinska Institute, Sweden
	Dr. Håkan Jönsson	Royal Institute of Technology (KTH), Sweden
	Dr. Margret Wahlström	Royal Institute of Technology (KTH), Sweden
	Dr. Joachim Amorim	Strategic Research of Science, Sweden
	Prof. Anders Karlsson	Embassy of Sweden, Sweden
	Ms. Miki Arai	Embassy of Sweden, Sweden
	Prof. Peter Nilsson	Linköping University, Sweden
	Prof. Bengt Fadeel	Karolinska Institute, Sweden
	Prof. Björn Önfeldt	Royal Institute of Technology (KTH), Sweden
	Prof. Martin Wiklund	Royal Institute of Technology (KTH), Sweden
	Prof. Pierre Lafolie	Karolinska Institute, Sweden

Date (2010)	Name	Affiliation
May 14	Prof. Håkan Engquist	Uppsala University, Sweden
	Prof. Ann-Christine Albertsson	Royal Institute of Technology (KTH), Sweden
May 17 - 21	Dr. Prashant Gupta	Indian Institute of Technology Kanpur, India
	Hua Lijuan	WuXi AppTec, Co.Ltd, China
May 18	Prof. Krzysztof J. Kurzydlowski	Warsaw University of Technology (WUT), Poland
	Prof. Malgorzata Lewandowska	Warsaw University of Technology (WUT), Poland
	Dr. Tomasz Plocinski	Warsaw University of Technology (WUT), Poland
May 21 - 28	Dr. Lynn Rathbun	Cornell University, USA
May 23 - Jul 6	Prof. Samuthirapandian Nagarajan	Annamalai Universitry, India
May 24	Dr. Vladimir P. Fedin, Director	Nikolaev Institute of Inorganic Chemistry, Russia
May 27	Prof. Stephen Holloway, Executive Pro-Vice-Chancellor	Liverpool University, UK
	Prof. S. Samar Hasnain	Liverpool University, UK
	Prof. Andrew I. Cooper	Liverpool University, UK
	Prof. Werner Hofer	Liverpool University, UK
	Prof. Yixiong Wu	Shanghai Jiao Tong University, China
	Prof. Xuejun Jin	Shanghai Jiao Tong University, China
	Prof. Wenjiang Ding	Shanghai Jiao Tong University, China
	Prof. Ming Li	Shanghai Jiao Tong University, China
	Prof. Jianguo Li	Shanghai Jiao Tong University, China
	Prof. Baode Sun	Shanghai Jiao Tong University, China
	Prof. Zhaomin Cao	Shanghai Jiao Tong University, China
	Prof. Wanguo Xu	Shanghai Jiao Tong University, China
	Prof. Shin-ichi Hirano	Shanghai Jiao Tong University, China
Jun 7	Prof. Grin Yuri	Max Planck Institute in Dresden, Germany
Jun 8 - 9	Dr. Maguyen Wuang Liem, Director	Vietnam Association for Science and Technology, Vietnam
Jun 14 - 23	Prof. Martin Pumera	Nanjan University, Czech Republic
Jun 14 - 26	Prof. James Gimzewski	University of California, Los Angeles (UCLA), USA
Jun 16	Dr. Andreas Heinrich	IBM Almaden, USA
	Dr. Bernd Gotsmann	IBM Zurich, Switzerland
	Dr. Gerhard Meyer	IBM Zurich, Switzerland
	Dr. Leo Gross	IBM Zurich, Switzerland
	Dr. Markus Ternes	IBM Almaden, USA
	Dr. Sebastian Loth	IBM Almaden, USA
	Dr. Christopher Lutz	IBM Almaden, USA
Jun 21	Ramasamy Jayavel, Director	Anna University, India
Jun 28 – Jul 10	Prof. Pradhananga Raja Ram	Tribhuvan University, Nepal
Jun 29 - Jul 1	André-Jean Attias	Université Pierre et Marie Curie, France
	Fabrice Mathevet	Université Pierre et Marie Curie, France
	Prof. Ezzeddine Trik	CNRSM, Tunisia

Date (2010)	Name	Affiliation
Jun 30 - Jul 13	Prof. Ayyappan Pillai Ajayaghosh	National Institute for Interdisciplinary Science and Technology, India
Jul 11 - 23	Prof. Fushe Han	Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, China
Jul 12 - 31	Prof. Lei Zhou	Fudan University, China
Jul 12 - Aug 5	Prof. Emerson Camargo	Federal University of Sao Carlos UFSCar, Brazil
July 14	Prof. Michael N. Barber	Flinders University, Australia
	Ms. Eliza Saito	Flinders University, Australia
Jul 18 - Aug 3	Prof. Ganpati Ramanath	Rensselaer Polytechnic Institute, USA
Jul 21 - 30	Dr. Lakshmi Kantam	IICT Hyderabad, India
Jul 22 - 29	Prof. Limin Wu	Fudan University, China
Jul 23	Mr. Koshi Nitta, General Manager	Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan
Jul 25 – Aug 8	Prof. Niu Li	Chinese Academy of Sciences, China
Jul 26	Mr. Masanobu Morita	Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan
	Mr. Toshiaki Mizuno	Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan
Aug 1 - 7	Dr. Gennady Gor	State University of New Jersey, USA
Aug 2 - 27	Prof. Zhengdong Cheng	Texas A & M, USA
Aug 2 - Sep 2	Prof. Xingcai Wu	Nanjing University, China
Aug 3	Prof. Michael L. Klein	Institute for Computational Molecular Science, Temple University, USA
Aug 6 - 27	Dr. Keisuke Sato	University of Bologna, Italy
Aug 17 - Sep 3	Prof. Nobuyoshi Miyamoto	Fukuoka Institute of Technology, Japan
Aug 22 - Nov 19	Prof. Volodymyr Chegel	Institute of Semiconductor Physic National Academy of Science, Ukraine
Aug 23	Prof. Arie Rip, Rector and President	University of Twente, The Netherlands
Aug 26 - 27	Dr. Shinji Inagaki	Toyota Central R&D labs., Inc., Japan
Aug 27 - Sep 5	Dr. Giancarlo Forte	University of Roma Tor Vergata, Italy
Aug 30 - 31	Prof. Miroslav Ludwig	University of Pardubice, Czech Republic
	Prof. Jiri Kulhanek	University of Pardubice, Czech Republic
	Prof. Filip Bures	University of Pardubice, Czech Republic
Aug 31 - Sep 5	Prof. Krishnarajanagar Nagappa (K.N. Ganesh), Director	IISER Pune, India
Aug 31 - Sep 13	Prof. Jaroslav Burda	Charles University, Czech Republic
Sep 1 - 2	Prof. Dongyuan Zhao	Fudan University, China
Sep 2	Prof. Kazuo Kadowaki	University of Tsukuba, Japan
	Dr. Wai-Kwong Kwok	ANL, Korea
	Prof. Ahmet Oral	Sabanci University, Korea
Sep 2 - 15	Prof. James Gimzewski	University of California, Los Angeles (UCLA), USA
Sep 15	Prof. Hideaki Yoshitake	Yokohama National University, Japan
Sep 16 - 18	Prof. Conxita Solans	Institute of AdvancedChemistry of Catalonia, Spain
Sep 16 - Nov 5	Prof. Antonello Tebano	University of Roma Tor Vergata, Italy
Sep 27 - 28	Prof. Eunkyong Kim	Yonsei University, Korea

Date (2010)	Name	Affiliation
Sep 30 - Oct 8	Prof. Li Guang-hai	Anhui Key Laboratory of Nanomaterials and Nanotechnology, ISSP, CAS, China
Oct 1	Dr. Jaroslav Riha	Ministry of Education, Czech Republic
	Dr. Frantisek Trojack	Embassy of Czech Republic, Czech Republic
Oct 5	Dr. Mauro Dell'Ambrogio	SSER, Switzerland
	Mr. Urs Bucher	Ambassador, Embassy of Switzerland, Tokyo, Japan
	Prof. Joel Mesot, Director	Paul Scherrer Institute (PSI), Switzerland
	Prof. Matthias Kaiserswerth	IBM Research Laboratory Rueschlikon, Switzerland
	Dr. Felix Moesner	Science & Technology Office Tokyo, Switzerland
	Prof. Andy Hor	IMRE, Singapore
	Dr. Jasbir Singh	IMRE, Singapore
	Dr. Foo Yong Lim	IMRE, Singapore
	Dr. Tripathy Sudhiranjan	IMRE, Singapore
	Prof. Chua Soo Jin	IMRE, Singapore
	Dr. Zhang Jie	IMRE, Singapore
	Dr. Joel YANG Kwang Wei	IMRE, Singapore
	Dr. Liu Lerwen	Asia Nano Forum
Oct 17 - 18	Prof. Jiri Cejka	J. Heyrovsky Institute of Physical Chemistry, Czech Republic
Oct 17 - 23	Prof. Niels Falsig Pedersen	Technical University of Denmark, Denmark
Oct 17 - Dec 17	Dr. Muruganathan Ramanathan	Center for Nanoscale Materials, Argonne National Laboratory, USA
Oct 22	Prof. Anthony K. Cheetham	University of Cambridge, UK
Oct 25	Dr. Henri Van Damme	Laboratoire Central des Ponts et Chaussees, France
	Dr. Jean-Pierre Magna	Laboratoire Central des Ponts et Chaussees, France
	Dr. Monssef Drissi-Habti	Laboratoire Central des Ponts et Chaussees, France
	Mr. Patrick Mallejacq	Laboratoire Central des Ponts et Chaussees, France
	Dr. Tomonori Tomiyama	Public Works Research Institute, France
Nov 4 - 6	Prof. Ting Yu	Nanyang Techonological University, Singapore
Nov 7 - 10	Prof. Francoise M.Winnik	Université de Montréal, Canada
Nov 7 - 13	Prof. Meng-Bo Luo	Zhejiang University, China
Nov 11	Prof. Nicola Pinna	University of Aveiro, Portugal and Seoul National University, Korea
Nov 14 - 22	Prof. Sudipta Seal	University of Central Florida, USA
Nov 18	Dr. Akshat Tanksale	University of Queensland, Australia
Nov 18 - 20	Prof. Peter Sushuko	University College London, UK
	Prof. Qian Niu	University of Texas, USA
	Prof. Xianggang Qiu	Chinese Academy of Science, China
Nov 30	Prof. Bing-Joe Hwang	National Taiwan University of Science and Technology, Taiwan
	Prof. Wei-Nien Su	National Taiwan University of Science and Technology, Taiwan
	Prof. Nae-Lih Wu	National Taiwan University of Science and Technology, Taiwan
	Prof. Chi-Chang Hu	National Taiwan University of Science and Technology, Taiwan
	Prof. Kuan-Zong Fung	National Taiwan University of Science and Technology, Taiwan
	Prof. Yuh-Lang Lee	National Taiwan University of Science and Technology, Taiwan
	Prof. Chuin-Tih Yeh	Yuan Ze University, Taiwan
	Mr. Shih-Yu Huang	National Science Council, Taiwan

Date (2010)	Name	Affiliation
Nov 30 - Dec 11	Prof. S. Ganesan	Anna University, India
	Prof. R. Jayavel	Anna University, India
	Prof. D. Arivoli	Anna University, India
Dec 1 - Apr 28	Dr. Aleksandra Pacula	Polish Academy of Sciences, Poland
Dec 2 - 11	Prof. Parasuraman Selvam	IIT Madras, Chennai, India
Dec 6	Dr. Justin Mark Hodgkiss	Victoria University of Wellington, New Zealand
	Prof. John Rogers	University Illinois at Urbana-Champaign, USA
	Prof. Shen Dillon	University Illinois at Urbana-Champaign, USA
	Prof. Sendipan Mishra	University Illinois at Urbana-Champaign, USA
	Prof. Amy Wagoner Johnson	University Illinois at Urbana-Champaign, USA
	Prof. Mike Arnold	University Wisconsin-Madison, USA
	Prof. Doug Weibel	University Wisconsin-Madison, USA
	Prof. Jiaxing Huang	Northwestern University, USA
	Prof. Emily Weiss	Northwestern University, USA
Dec 8	In-Ok Lee, Vice Chairman	Chosun Refractories, Co. Ltd., Korea
	Sam-Ryu Yang, President & CEO	Chosun Refractories, Co. Ltd., Korea
	Sunwoo Sik, CTO Senior Vice President	Chosun Refractories, Co. Ltd., Korea
Dec 13 - 28	Prof. James Gimzewski	University of California, Los Angeles (UCLA), USA
Dec 14 - 24	Prof. Lina Ghibelli	University of Roma Tor Vergata, Italy
Dec 15	Lim Chuan Poh, Chairman	Agency for Science, Technology and Research (A*STAR), Singapore
	Amanda Ang, Senior Officer	Strategic Planning, Science and Engineering Research Council, A*STAR, Singapore
Dec 21	Prof. G Jianfeng	XJTU, China
	Prof. Yunzhi Wang	Ohio State University, USA and XJTU, China
	Prof. Changjiu Li	XJTU, China
	Prof. Lixue Zhang	XJTU, China
	Prof. Bingjun Ding	XJTU, China
	Prof. Sen Yang	XJTU, China
	Prof. Yu Wang	XJTU, China
	Mr. Feng Chen	XJTU, China
Dec 24	Prof. Suresh Valiyaveettil	National University of Singapore, Singapore

Appendix 8.15: MANA History

MANA History (October 2007 – March 2011):

Date	Event
2007 Sep 12	NIMS with the project called "International Center for Materials Nanoarchitectonics (MANA)" has been selected to participate as one of five institutions in the World Premier International (WPI) Research Center Initiative, a program sponsored by the Ministry of Education, Culture, Sports, Science and Technology (MEXT)
2007 Oct 1	Official Inauguration of MANA
2007 Oct 18	The launching Ceremony of MANA was held at Okura Frontier Hotel, Tsukuba
2008 Feb 1	Launch of the new MANA Website in English
2008 Feb 7	The 1st MANA Seminar entitled "Nanotechnology, a Key to Sustainability" was given by Dr. Heinrich Rohrer (Nobel Laureat in Physics 1986 and MANA Advisor)
2008 Mar 10-13	The 1st MANA International Symposium was held in Tsukuba
2008 Mar 12	1st MANA Evaluation Committee Meeting
2008 Mar 24	MANA signed a MOU with UCLA, USA (to open MANA Satellite)
2008 Apr 1	Start of ICYS-MANA Program
2008 Apr 16	1st MANA Site Visit by the WPI Program Committee
2008 May 6	MANA signed a MOU with the Georgia Institute of Technology, USA (to open MANA Satellite)
2008 May 7	Dr. Ajayan Vinu (MANA Independent Scientist) received the Asian Excellent Young researcher Lectureship Award 2008 by the Chemical Soceity of Japan
2008 May 20	1st Follow-up Meeting by the WPI Follow-Up Committee
2008 May 30	MANA signed a MOU with the CNRS, France (to open MANA Satellite)
2008 Jun 2	NIMS Overseas Operation Office opened at the University of Washington, USA
2008 Jun 20	MANA signed a MOU with the University of Cambridge, UK (to open MANA Satellite)
2008 Jul 9	Dr. Kenji Kitamura (MANA PI) received the “Inoue Harushige Prize” given by the Japan Science and Technology Agency
2008 Jul 16	Dr. Takayoshi Sasaki (MANA PI) and Dr. Minoru Osada (MANA Scientist) received the “2008 Tsukuba Prize”
2008 Jul 19	Prof. Sir Harry W. Kroto visited MANA
2008 Jul 28 – Aug 1	The 5th NIMS-IRC-UCLA Nanotechnology Summer School was held at NIMS
2008 Sep 11	Dr. Kohei Uosaki (MANA PI) was named “International Society of Electrochemistry Fellow”
2008 Sep 25	Dr. Masayoshi Higuchi (MANA Independent Scientist) received the "SPSJ Hitachi Chemical Award" given by the Society of Polymer Science, Japan (SPSJ)
2008 Oct 1	Celebration of 1st Anniversary of MANA. Organizational Reform of MANA
2008 Oct 6	Dr. Yoshio Bando (MANA Chief Operating Officer) was named "American Ceramic Society Fellow"
2008 Nov 27-28	2nd MANA Site Visit by the WPI Program Committee
2008 Dec 11	MANA activities were introduced in the NHK Program “Ohayou Nippon (Good Morning Japan)”
2008 Dec 13	Dr. Alexei Belik (MANA Independent Scientist) and Dr. Pavuluri Srinivasu (ICYS-MANA Researcher) received the "Encouragement of Research in Materials Science Award” given by the Materials Research Society of Japan
2009 Feb 25-27	The 2nd MANA International Symposium was held in Tsukuba
2009 Mar 17	2nd Follow-up Meeting by the WPI Follow-Up Committee
2009 Mar 28	Dr. Ajayan Vinu (MANA Independent Scientist) received the "CSJ Award for Young Chemists" given by the Chemical Society of Japan

Date	Event
2009 Apr 14	Dr. Minoru Osada (MANA Scientist) received the "Young Scientists' Prize" given by the Minister of Education, Culture, Sports, Science and Technology (MEXT)
2009 May 8	Dr. Kazuhiro Hono (MANA PI) received the "2009 Honda Frontier Award" given by the Honda Memorial Foundation
2009 May 19	Prof. James K. Gimzewski (MANA PI) was elected as "Fellow of the Royal Society"
2009 Jun 15-17	The 8th Japan-France Workshop on Nanomaterials held at NIMS
2009 Jul 3	The 1st MANA-NSC Joint Workshop on fusion of nanotechnology and bioscience was held at the MANA Satellite at University of Cambridge, UK
2009 Jul 14	A delegation from U.S. Department of Energy (DOE) and U.S. Department of Defense (DOD) visited MANA
2009 Jul 27-31	The 6th MANA-NSC-CNSI Nanotechnology Students' Summer School held at the MANA Satellite at UCLA, Los Angeles, USA
2009 Sep 20-22	XJTU-NIMS/MANA Workshop on Materials Science 2009 was held at Xi'an Jiaotong University, China
2009 Sep 25	Dr. Jun Nakanishi (MANA Independent Scientist) received the "Japan Society for Analytical Chemistry Award for Younger Researchers"
2009 Sep 29	Dr. Kohsaku Kawakami (MANA Scientist) received the "JSCTA Award for Young Scientists" given by the Japan Society of Calorimetry and Thermal Analysis
2009 Oct 2	Prof. Svante Lindqvist, Nobel Museum Director and Chair at the Royal Institute of Technology, Stockholm, visited MANA
2009 Oct 5	Dr. Kohei Uosaki (MANA PI) received the "ECS Fellow Award" given by the Electrochemical Society
2009 Oct 9	Prof. Sir Harry W. Kroto visited MANA for one-on-one meetings with young scientists
2009 Oct 10-12	Tsukuba-Shinchu Bilateral Symposium on "Advanced Materials Science and Technology" was held at National Tsing Hua University, Taiwan
2009 Oct 13	MANA-URTV Joint Workshop on Nanostructured Materials for Sustainable Development was held at University Rome Tor Vergata, Italy
2009 Oct 13-14	The 1st MANA-CEMES Joint Workshop on Fusion of Theory and Experiment was held at the MANA Satellite in CNRS Toulouse, France
2009 Oct 26	Dr. Naoki Ohashi (MANA PI) received the "Richard M. Fulrath Award" given by the American Ceramics Society
2009 Nov 10	Nanjing University-Anhui Normal University-Hokkaido University-MANA Joint Symposium was held at Nanjing University, China
2009 Dec 2	Dr. Ajayan Vinu (MANA Independent Scientist) received the "ICSB Award of Excellence" given by the Indian Scociety of Chemists and Biologists
2009 Dec 10	Osaka University-MANA/NIMS Joint Symposium on "Advanced Structural and Functional Materials Design" was held at Osaka University
2009 Dec 18	Visit of the MANA Satellite at UCLA by WPI Program Director Prof. Toshio Kuroki
2010 Jan 7-8	3rd MANA Site Visit by the WPI Program Committee
2010 Jan 14	Waseda University-MANA/NIMS Joint Symposium on "Advanced Materials Designed at Nano- and Meso-scales toward Practical Chemical Wisdom" was held at Waseda University
2010 Jan 31 2010 Feb 4	Prof. James Gimzewski (MANA Satellite Principal Investigator) was featured in the NHK's satellite TV program "The proposal for the future (mirai-e-no teigen)"
2010 Feb 4	Dr. Yusuke Yamauchi (MANA Independent Scientist) received "Inoue Research Aid for Young Scientists"
2010 Feb 16	Dr. Takayoshi Sasaki (MANA PI) ranked as the 18th most-prolific author in the high quality journal "Chemistry of Materials" (Impact Factor 5.046)
2010 Mar 3	Dr. Masayoshi Higuchi (MANA Independent Scientist) received the "Marubun Academy Award"
2010 Mar 3-5	The 3rd MANA International Symposium was held in Tsukuba

Date	Event
2010 Mar 5	2nd MANA Evaluation Committee Meeting
2010 Mar 21	Dr. Masanori Kohno (MANA Scientist) received the “Young Scientist Award” given by the Physical Society of Japan (PSJ)
2010 Mar 24-26	The Workshop on "Materials Nanoarchitectonics for Sustainable Development" as a part of the "Invitation Program for Advanced Research Institutions in Japan" sponsored by the Japan Society for the Promotion of Science (JSPS), was held in Gora, Hakone, Japan
2010 Mar 27	Dr. Kohei Uosaki (MANA PI) received the “Chemical Society of Japan Award”
2010 Apr 1	Dr. Tsuyoshi Hasegawa (MANA PI) and Dr. Kazuya Terabe (MANA Scientist) received the “NIMS President's Research Achievement Award”
2010 Apr 1	Dr. Yusuke Yamauchi (MANA Independent Scientist) received the “Ceramic Society of Japan Award”
2010 Apr 13	Dr. Katsunori Wakabayashi (MANA Independent Scientist) received the “Young Scientists' Prize” given by the Ministry of Education, Culture, Sports, Science and Technology (MEXT)
2010 May 25	Dr. Yoshihiro Tsujimoto (MANA Independent Scientist) received the “Research Progress Award” given by the Japan Society of Powder and Powder Metallurgy (JSPM)
2010 Jun 14-15	The joint IBM and NIMS/MANA symposium on "Characterization and manipulation at the atomic scale" was held in Tsukuba
2010 Aug 9	Research results of Dr. Ajayan Vinu (MANA Independent Scientist) on “a new fabrication of gold nanoparticles by self-assembly of nanoporous materials” were reported in Nikkei Online
2010 Aug 18	MANA received a high appraisal from the WPI program committee for the activity in Fiscal Year 2009
2010 Aug 25	Three research subjects proposed by MANA researchers were selected for funding from Core Research of Evolutional Science & Technology (CREST) and Precursory Research for Embryonic Science and Technology (PRESTO) by the Japan Science and Technology Agency
2010 Aug 27	The 1st NIMS-EWHA workshop on “ Advanced Functional Materials” (NEWAM-10) was held in Tsukuba
2010 Sep 9	Dr. Kohei Uosaki (MANA PI) received the “Japanese Photochemistry Association Lectureship Award 2010”
2010 Oct 11	Research results of the Traversa Group (MANA) on “Micro-Solid Oxide Fuel Cells” was introduced on Sankei News and Nikkei Online
2010 Oct 22	Research results on the “Development of an Exhaust Gas Catalyst” by Dr. Katsuhiko Ariga (MANA PI) and Dr. Hideki Abe (NIMS Advanced Electronic Materials Center) were introduced in the October 22 issue of Nikkei Online
2010 Nov 11	Outreach activities of MANA were featured in the NHK program "Ohayou Nippon (Good Morning Japan)
2010 Nov 11	Dr. Ajayan Vinu (MANA Independent Scientist) has been selected as the recipient of the prestigious “Friedrich Wilhelm Bessel Research Award 2010” given by the Alexander von Humboldt Foundation, and as recipient of the “Catalysis Society of India Award 2010”
2010 Nov 24-26	The 9th Japan-French International Workshop was held in Toulouse, France
2010 Dec 1	2nd Waseda University-MANA/NIMS Joint Symposium was held at NIMS
2010 Dec 9	Ms. Kumiko Hayashi, Parliamentary Secretary for Education, Culture, Sports, Science and Technology (MEXT) visited MANA
2010 Dec 15	Mr. Lim Chuan Poh, Chairman, Agency for Science, Technology and Research (A*STAR), Singapore, visited MANA
2010 Dec 21	Dr. Masakazu Aono, MANA Director-General, was selected as a winner of the “2010 Feynman Prize in Nanotechnology” given by Foresight Institute, USA
2011 Jan 1	The researchers Dr. Jinhua Ye (MANA PI) and Dr. Yusuke Yamauchi (MANA Independent Scientist) were featured in the NHK Special program "Can Japan Survive?"
2011 Jan 17	Dr. Katsuhiko Ariga (MANA PI) received the "2010 Nice-Step Scientist (NISTEP) Award" by the National Institute of Science and Technology Policy

Date	Event
2011 Jan 19	The satellite workshop “Dirac Electron Systems 2011” of the workshop "Graphene Workshop in Tsukuba 2011" was held at NIMS Namiki-site.
2011 Jan 29	Mr. Yoichiro Genba, Minister of State for Science and Technology Policy, visited MANA
2011 Feb 1	Launch of the new MANA Website in Japanese
2011 Feb 4	Research of Dr. Jinhua Ye (MANA PI) was introduced in the NHK Eco Channel
2011 Feb 6	Dr. Katsuhiko Ariga (MANA PI) received the "ISCB Award for Excellence 2011" in the area of Chemical Sciences given by the Indian Society of Chemists and Biologists (ISCB)
2011 Feb 18	Dr. H.E. Virachai Virameteekul, Minister of Science and Technology, Thailand, visited MANA
2011 Feb 18	Dr. Masayoshi Higuchi (MANA Independent Scientist) received the "Gottfried Wagener Prize 2010" given by German Innovation Award
2011 Feb 21-24	Dr. Masayoshi Higuchi (MANA Independent Scientist) received the "Gottfried Wagener Prize 2010" given by German Innovation Award
2011 Feb 28	The workshop on “Advanced Functional Nanomaterials” was held in Chennai, India
2011 Feb 28	Research of Dr. Tsuyoshi Hasegawa (MANA PI) was introduced in the NHK English radio program "Japan and World Update"
2011 Mar 2-4	The 4th MANA International Symposium was held in Tsukuba
2011 Mar 5	Prof. Heinrich Rohrer’s Science Class 2011 was held at NIMS Namiki-site

MANA is operating with the financial support of
the World Premier International Research Center
Initiative (WPI) of the Ministry of Education,
Culture, Sports, Science and Technology (MEXT)

International Center for Materials Nanoarchitectonics (MANA)
National Institute for Materials Science (NIMS)

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