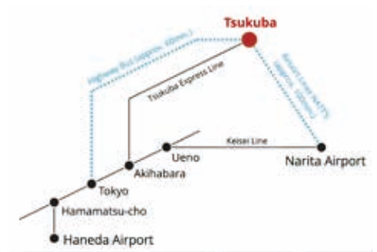

International Center for Materials Nanoarchitectonics (WPI-MANA)

World Premier International Research Center Initiative (WPI)
International Center for Materials Nanoarchitectonics (WPI-MANA)
National Institute for Materials Science (NIMS)

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(January 2021)

Nano Revolution for the Future

MANA

INTERNATIONAL CENTER FOR MATERIALS NANOARCHITECTONICS

MANA's Vision

Toward a Better Global Future:
Pioneering a new paradigm
in materials development
on the basis of "Nanoarchitectonics"

MANA's Mission

1 Develop groundbreaking new materials and realize

" The New Paradigm of Nanotechnology "

2 Construct a worldwide network to accelerate

" Global Circulation for World Top-Level Researchers "

3 Provide a creative environment to foster

" Young Scientists who Challenge Innovative Research "

A Message from the Director
Takayoshi Sasaki

The International Center for Materials Nanoarchitectonics (WPI-MANA) is one of the first five WPI research centers that were established in 2007 in the framework of the World Premier International Research Center Initiative (WPI), which is sponsored by Japan's Ministry of Education, Culture, Sports. Since the establishment of WPI-MANA, we have conducted a wide range of challenging investigations that have made WPI-MANA a representative international research center in the fields of nanotechnology and material science. We tailor nanoscale parts that exhibit cutting-edge functions, and organize/integrate them to create new materials and systems. Through this approach, we try to achieve scientific breakthroughs and technological innovations, and we describe the research concept with the word "nanoarchitectonics."

As a result, we have created many MANA original accomplishments, including nanosheets, atomic switches, and nanoporous materials, and recently, new developments such as high-performance thermoelectric materials, neuromorphic devices, and topological photonic materials. Regarding the function of the international hub, which is another important role of WPI centers, we invite world top-class laboratories as MANA satellites and promote world top-class research collaboration. Through collaborative research, we have built an extensive network with many overseas universities and research institutions, and have established a framework to provide a place for researchers and students from all over the world to gather and conduct innovative research. As a result, the ratio of foreign researchers in the center has reached nearly half, which is one of the highest international research environments in Japan. More than 400 researchers, who have studied in MANA, are active as MANA alumni worldwide.

WPI-MANA works to further deepen and pursue our "nanoarchitectonics." Based on this, we aim to open up new directions such as quantum material research. We look forward to your continued support for the further development of WPI-MANA.

Takayoshi Sasaki

Cover NanoArt

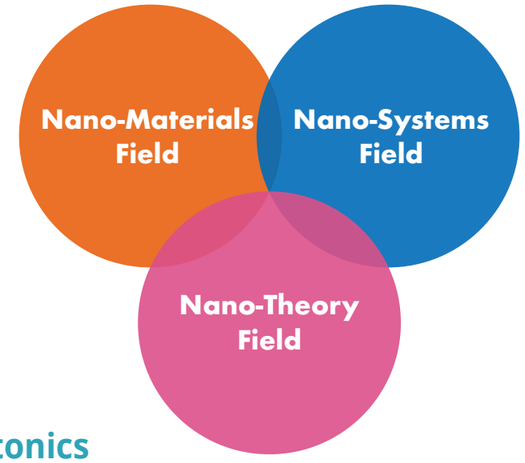
[Fullerene Nanoflower]
SEM Image of Self-Assembled Crystalline C60-Fullerene-Ag(I) Organometallic Complex.
by Lok Kumar Shrestha (MANA), Jonathan P. Hill (MANA)

Mission 1

What is Nanoarchitectonics?

The New Paradigm of Nanotechnology

Nanotechnology plays an extremely important role in the development of new materials. Yet, nanotechnology tends to be misunderstood as a simple extension of the conventional microtechnology that has demonstrated great effectiveness in micro-fabrication of semiconductor devices–in other words, as a refinement of microtechnology. In fact, however, nanotechnology and microtechnology are qualitatively different. At WPI-MANA, we call the new paradigm of nanotechnology, which correctly recognizes this qualitative difference, "Nanoarchitectonics."



Four key points of Nanoarchitectonics

1 "Unreliability-tolerant reliability"

In the world of microtechnology, structures can be constructed according to a design drawing or "blueprint." This is generally not possible in the world of nanotechnology because the world of nanotechnology is far smaller than that of microtechnology. In nanotechnology, thermal and statistical fluctuations become apparent, and at the same time, nanotechnology confronts the limits of the principles of control methods. Therefore, the viewpoint of realizing reliable functions with structures that contain ambiguity is important.

2 "From nano-functionality to nanosystem-functionality"

Nanoscale structures (nanoparts) frequently display interesting new properties, but there are limits to their functionalities, either as individual units or as simple aggregates. Thus, creating completely new functionalities by effectively utilizing interactions among nanoparts of the same type or different types is important.

3 "More is different"

In complex systems that consist of an enormous number of nanoparts, unexpected new functions often emerge in the system as a whole. Therefore, utilizing and not overlooking, the phenomenon that "quantity changes quality" is another key point.

4 "Truth can be described with plain words"

Finally, it is also necessary to pioneer a new theoretical field, which is capable of handling the three above-mentioned points. In this, it is necessary to construct a theoretical system that not only treats atoms, molecules electrons, photons, spin, etc. on a first-principles basis, but also consciously introduces "appropriate bold approximation."

Nano-Materials

Thermal Energy Materials Group

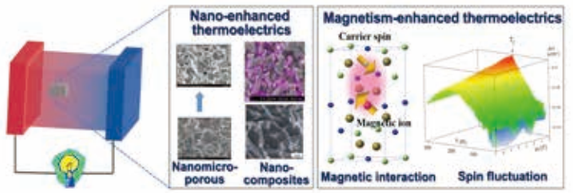
Field Coordinator
MANA PI, Group Leader
Takao MORI

Research Goal

Novel thermoelectric materials and enhanced control over thermal energy

Keywords

Thermoelectric, Thermal Transport, IoT Energy Harvesting, Phonon Engineering, Magnetism-Enhanced Thermoelectrics



Novel enhancement principles developed for thermoelectric materials

Soft Chemistry Group

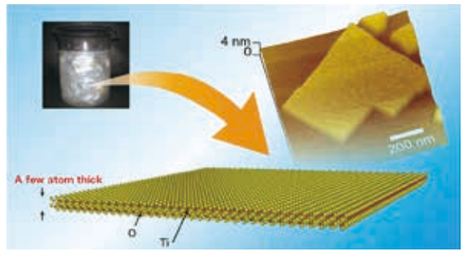
MANA PI, Group Leader
Takayoshi SASAKI

Research Goal

Design of new functional materials by organizing 2D nanosheets

Keywords

2D Nanosheets, Layer-by-Layer Assembly, Superlattice Heterostructure



Colloidal suspension of oxide nanosheets, AFM image & structure model

Mesoscale Materials Chemistry Group

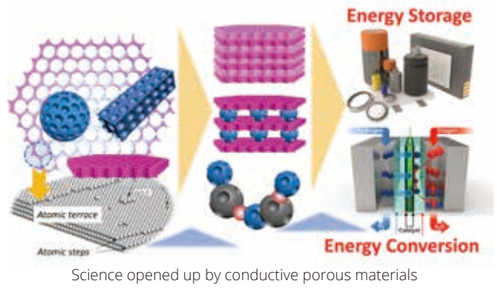
MANA PI, Group Leader
Yusuke YAMAUCHI
Acting Group Leader
Yusuke IDE

Research Goal

Inorganic total synthetic chemistry / science opened up by conductive porous materials

Keywords

Inorganic Synthetic Chemistry, Inorganic Material Chemistry, Self-Organization, Hybrid Materials



Science opened up by conductive porous materials

Nanotubes Group

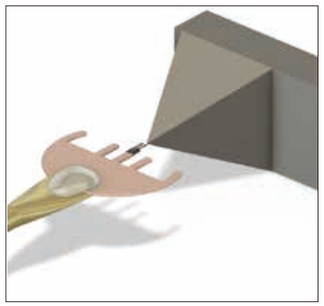
MANA PI, Group Leader
Dmitri GOLBERG
Acting Group Leader
Masanori MITOME

Research Goal

Unveiling mechanical, electrical, thermoelectric and optoelectronic properties of nanomaterials using state-of-the-art methods of analytical and *in situ* high-resolution transmission electron microscopy

Keywords

Nanotubes, Nanowires, Nanoparticles, Nanosheets, Graphene, Nanodevices



In situ TEM mechanical testing of individual nanosheet

"The New Paradigm of Nanotechnology"

THIS IS MANA!

Environment

MANA is located in the center of Tsukuba Science City together with many other national institutes. Across the street, there is JAXA known for space development. Most employees commute to NIMS by bike, bus or car.

Mission 1 *"The New Paradigm of Nanotechnology"*

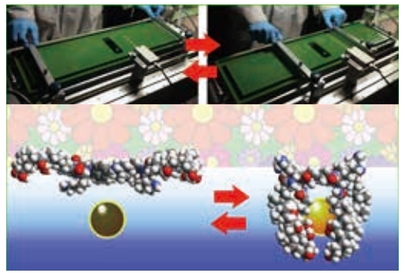
Nano-Materials

Supermolecules Group

MANA PI, Group Leader
Katsuhiko ARIGA

Research Goal
World greatest research by supramolecular chemistry and surface science

Keywords
Supramolecular Chemistry, Surface Science, Self-Organization, Molecular Machine, Nanocarbon



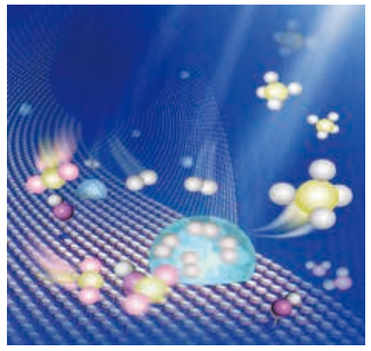
A method to control a molecular machine by hand motion

Photocatalytic Materials Group

MANA PI, Group Leader
Jinhua YE

Research Goal
Realization of artificial photosynthesis

Keywords
Photocatalysis, Solar Energy Conversion, Nano Metal/ Semiconductor, Environment Remediation, Solar Fuel Production



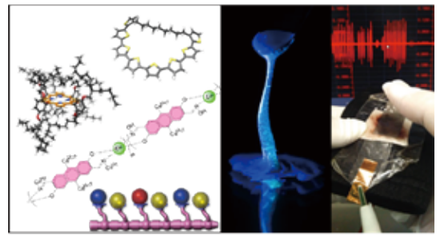
Photocatalytic reaction on nanosheet surface

Frontier Molecules Group

Group Leader
Takashi NAKANISHI

Research Goal
Development of stimuli-responsive, novel molecular systems and their sensor applications

Keywords
Novel Molecular Design, Functional Molecular Liquids, Sensors, Molecular Sequences, π-Conjugated Giant Molecules



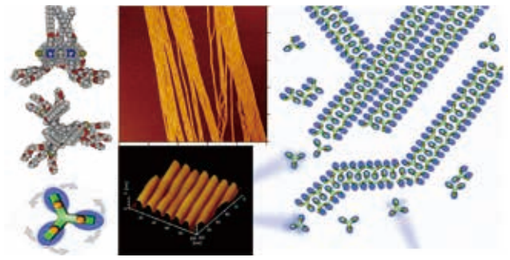
Images of stimuli-responsive molecules, functional molecular liquid and vibration sensor

Functional Chromophores Group

Group Leader
Jonathan HILL

Research Goal
New functional chromophores for sensing, catalysis and molecular electronics

Keywords
Sensing, Catalysis, Nanomolecules, Chirality, Chromophore, Self-Assembly



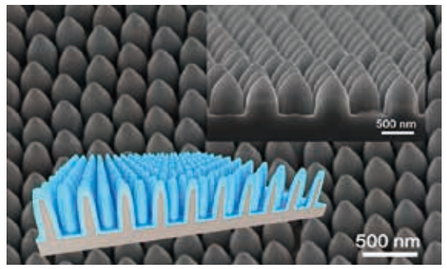
Nanowire self-assembly of trigeminal porphyrin nanomolecules

Nanostructured Semiconducting Materials Group

MANA PI, Group Leader
Naoki FUKATA

Research Goal
New functionalized nanostructures by constructing composite nanostructures

Keywords
Nanowires, Semiconductors, Electronic and Energy-related Devices



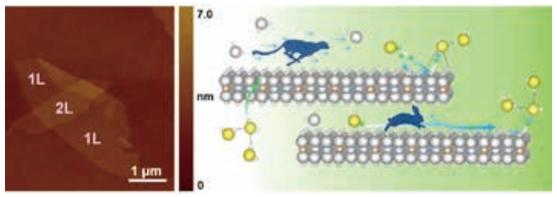
Nanowire array structures called moss eye structures

Functional Nanomaterials Group

Group Leader
Renzhi MA

Research Goal
Synthesis and Functionality Exploration of Novel Nanomaterials

Keywords
Nanotubes, Nanosheets, Energy Storage and Conversion, Nanoelectronics



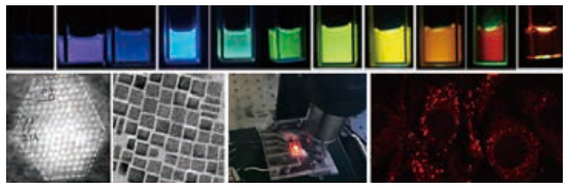
2D Superionic Conducting Material

Nanoparticle Group

Group Leader
Naoto SHIRAHATA

Research Goal
Building Smart Materials for Energy Conversion Devices from Nontoxic and Earth-Abundant Nanopaticles

Keywords
Thermal Phononics, Optoelectronics, Photothermal Effects, Nanoparticles, Qunatum Dots



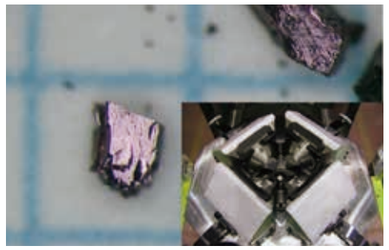
Colloidal quantum dots with emission spectral wavelengths tailored from UV to NIR and their applications including light emitting diodes and biomarkers

Quantum Solid State Materials Group

Group Leader
Kazunari YAMAURA

Research Goal
Search for new oxide-based materials with high functionality

Keywords
Quantum Materials, Transition Metal Oxides, Mixed Anions, High-Pressure-Crystal Growth



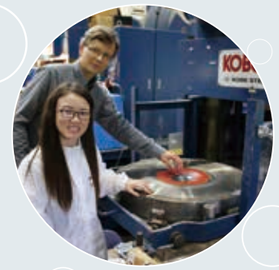
Crystals of a new oxide grown under a high-pressure condition in the high-pressure equipment

THIS IS MANA!

"Nano-Materials" creates new materials and eliciting novel functions by sophisticated control of compositions and structures at the nano level

Research Facilities

In order to carry out top level research, MANA provides access to large-scale facilities and advanced equipment. Researchers are supported by engineers.



Mission 1 *"The New Paradigm of Nanotechnology"*

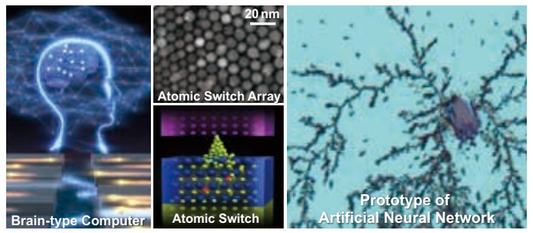
Nano-Systems

Nanoionic Devices Group

Field Coordinator
MANA PI, Group Leader
Kazuya TERABE

Research Goal
Creation of nanoionic devices for brain-type computer

Keywords
Artificial Synapse, Atomic Switch, Decision-Making Device, Neuromorphic System, Artificial Intelligence Hardware



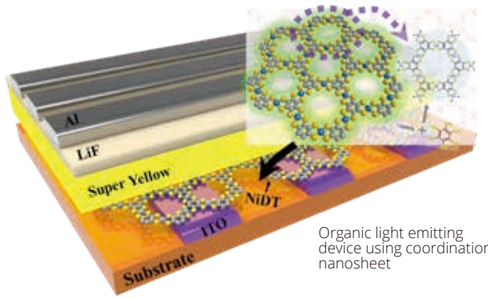
Artificial neural network prototype using ion transport in atomic switch array

Thin Film Electronics Group

MANA PI, Group Leader
Kazuhito TSUKAGOSHI

Research Goal
Research on Atomically-thin and/or Molecular scale thin film electronics

Keywords
Atomically-Thin Film, Molecular Scale Thin Film, Transport Properties, Electronics



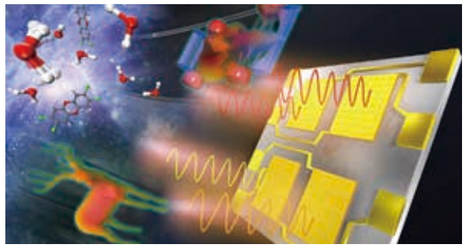
Organic light emitting device using coordination nanosheet

Photonics Nano-Engineering Group

MANA PI, Group Leader
Tadaaki NAGAO

Research Goal
Creation of spectrally-controlled smart infrared sensors and radiative heat converter devices

Keywords
Infrared Plasmonics, Perceptive Device, Spectrally-Controlled Infrared Heaters, Radiative Cooling, Solar Heat Harvesters



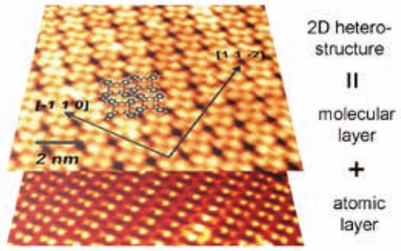
Multi-wavelength smart IR sensor with high wavelength resolution

Surface Quantum Phase Materials Group

Group Leader
Takashi UCHIHASHI

Research Goal
Surface/Interface-based quantum materials and their functionalities

Keywords
Surface, Superconductivity, Quantum Transport, Scanning Tunneling Microscopy



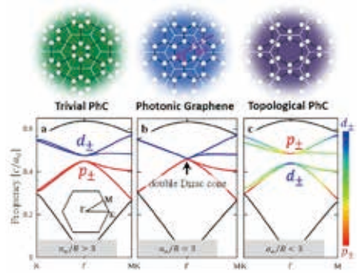
Scanning tunneling microscopy images of an organic molecule-atomic layer heterostructure

Nano-System Theoretical Physics Group

MANA PI, Group Leader
Xiao HU

Research Goal
Exploiting material topology for innovative electronics and photonics quantum functionality

Keywords
Band Topology, Artificial Graphene, Topological Photonic Crystal, Majorana Quasiparticle



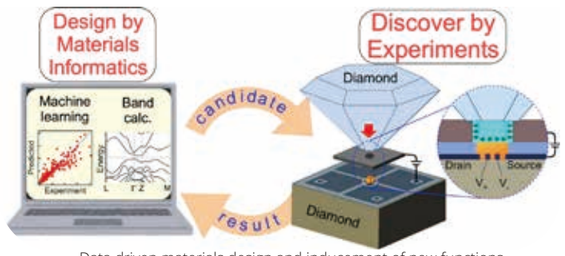
Emergent topological state and quantum functionality from artificial graphene

Nano Frontier Superconducting Materials Group

MANA PI, Group Leader
Yoshihiko TAKANO

Research Goal
Discovery of new superconductors and functional materials using materials informatics

Keywords
Superconductivity, Magnetism, High Pressure, Materials Informatics, Machine Learning



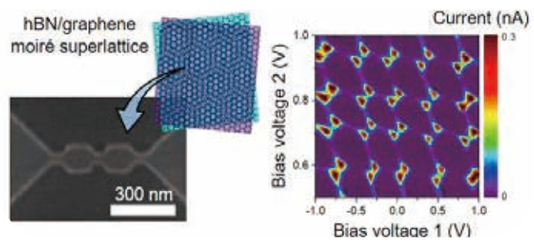
Data driven materials design and inducement of new functions under high pressure and field effect devices

Quantum Device Engineering Group

Group Leader
Yutaka WAKAYAMA

Research Goal
To explore and manipulate quantum functionalities in original device configurations

Keywords
Topological Properties, Valleytronics, Tunneling Device, Molecular Electronics



Single electron transport (right) via hBN/graphene double quantum dots (left)

Quantum Material-Properties Group

Group Leader
Taichi TERASHIMA

Research Goal
Novel electronic properties in superconductors and topological materials

Keywords
Superconductivity, Vortex, Topological, Strong Correlation, Low Temperature and High Magnetic Fields

Electronic properties studies in low-temperature high-magnetic-field environment

"Nano-Systems" create unique nanostructures and fabricate various quantum, energy functions by interacting controlled advanced devices in artificial intelligence, and environment fields

THIS IS MANA!

Events

Throughout the year MANA participates in many fun events, from Cherry Blossom Picnic Party to NIMS Open House. MANA researchers from different countries make the events very international.

Mission 1

Nano-Theory

First-Principles Simulation Group

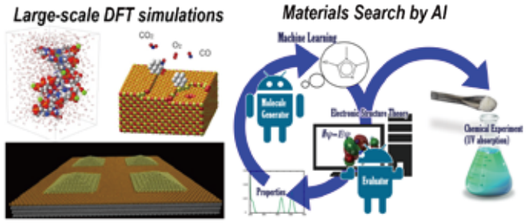
Field Coordinator
MANA PI, Group Leader
Tsuyoshi MIYAZAKI

Research Goal

Materials search and design by computer simulations and AI

Keywords

First-Principles Calculations, Density Functional Theory (DFT), Large-Scale Simulation Methods, Machine Learning Methods, Materials Search by AI



Computational materials research by Large-scale DFT simulations and AI-assisted materials search

Computational Nanoscience Group

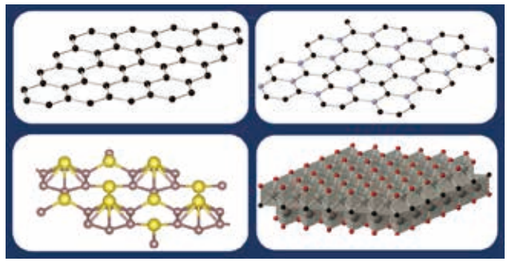
Group Leader
Masao ARAI

Research Goal

Theoretical and computational investigation of physical properties of nanomaterials

Keywords

First-Principles Calculations, Low Dimensional System, Artificial Structure



Various low dimensional system

Emergent Materials Property Theory Group

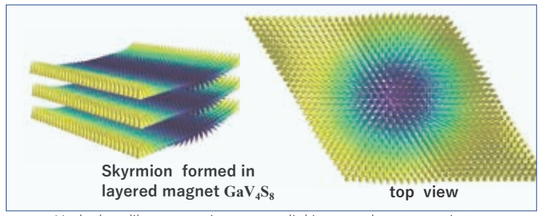
Group Leader
Akihiro TANAKA

Research Goal

Theoretical investigation of novel quantum functions in materials

Keywords

Topological Materials, Quantum Magnets, Multiferroics, Superconductors, First Principle Calculations, Statistical Mechanical Modelling, Berry Phase Effects

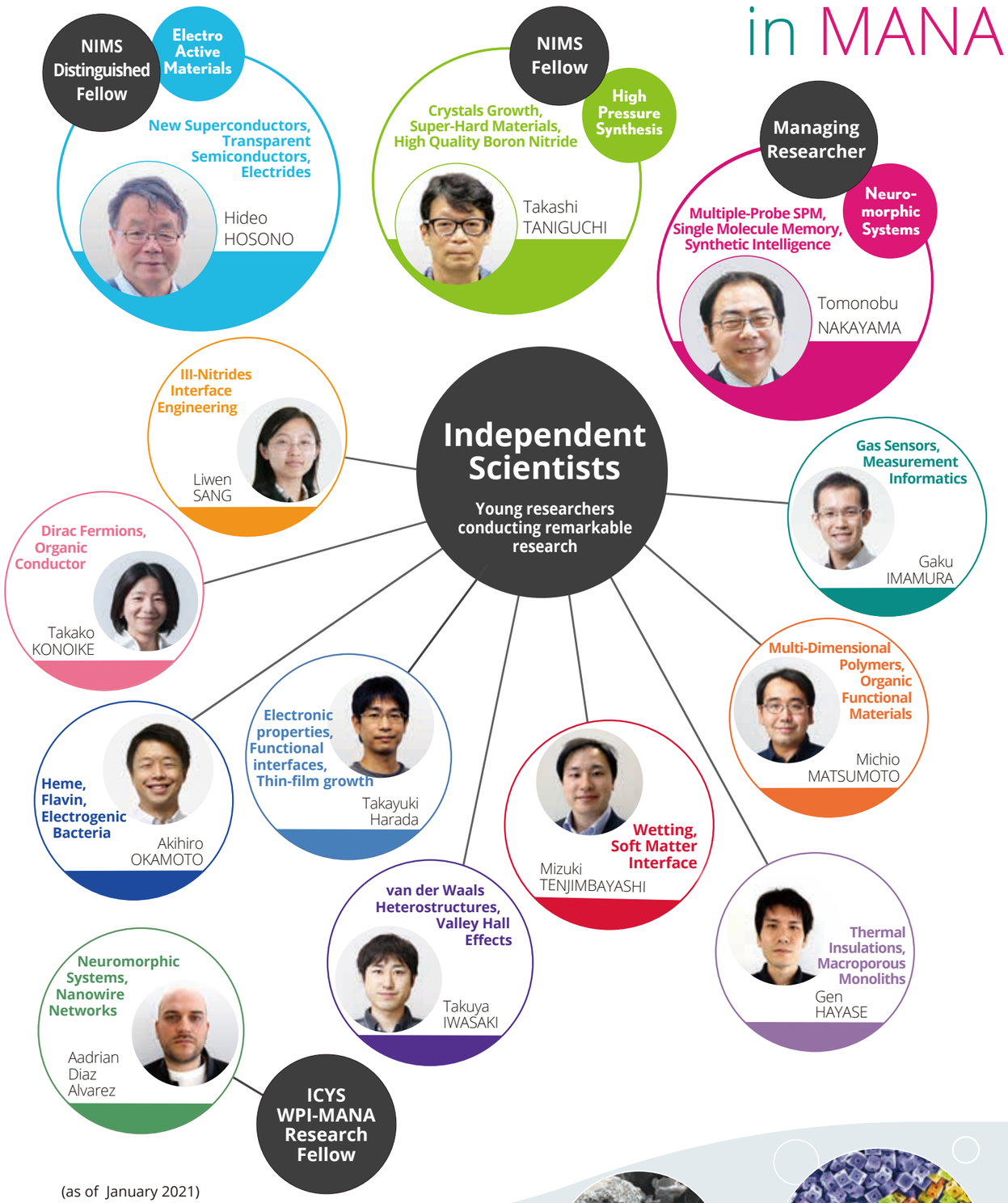


Hedgehog-like pattern in magnets linking together magnetism and electric properties.

"Nano-Theory" understands phenomena in the nanospace region, predicting new phenomena and creating novel nanostructured materials

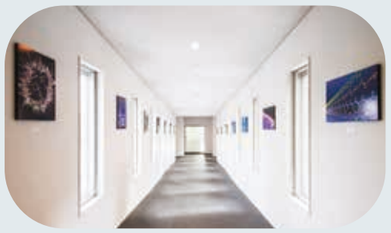
"The New Paradigm of Nanotechnology"

A Wide Variety of Researchers in MANA



(as of January 2021)

THIS IS MANA!



NanoArt Contest

MANA holds a yearly NanoArt contest. The prize-winning art work is displayed in the corridors and is also used as cover pictures of posters and pamphlets.

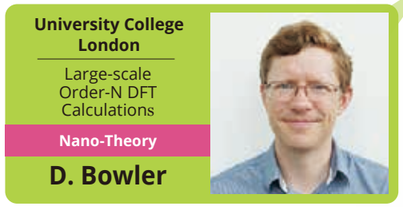
Mission 2 *"Global Circulation for Top-Level Researchers"*

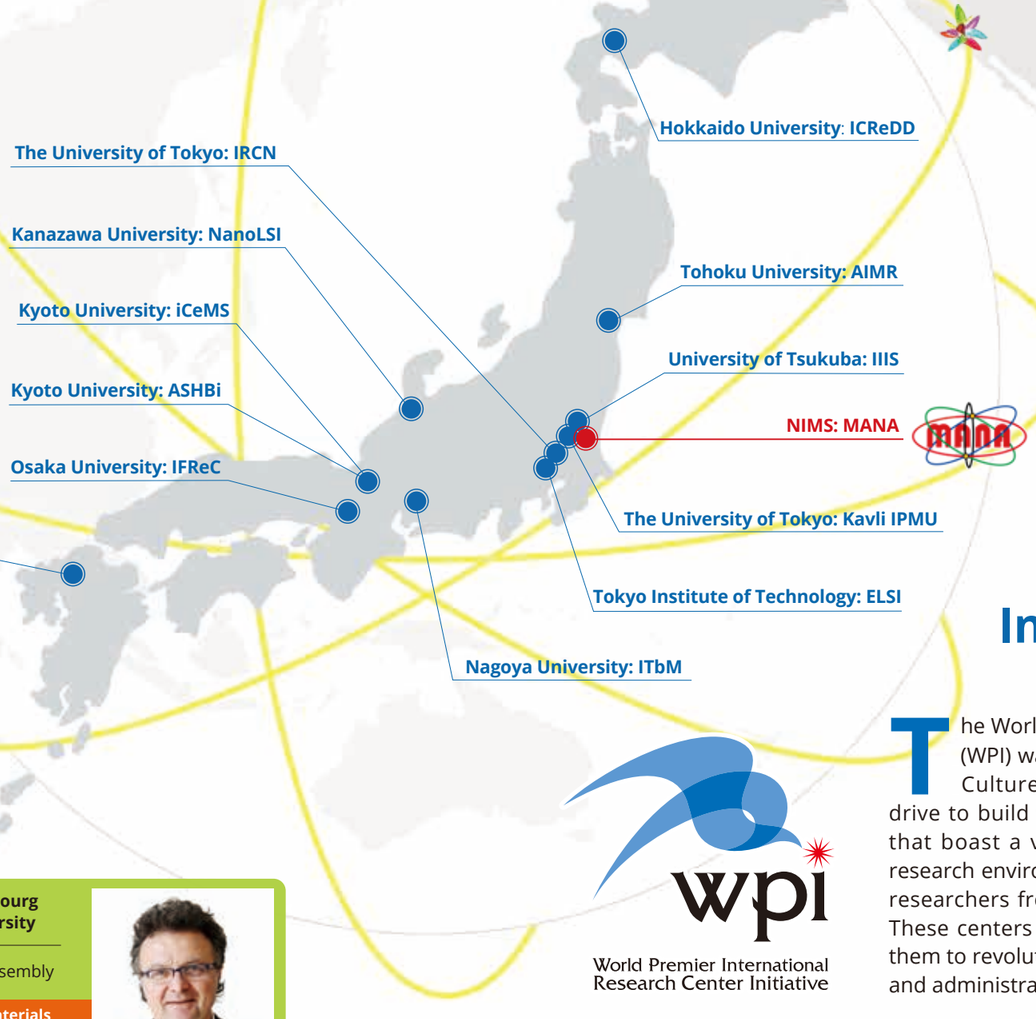
MANA Satellite Laboratories

WPI-MANA introduced the "Satellite Laboratories" system to implement the internationalization of our research environment. WPI-MANA invited prominent researchers as Satellite PIs, and established satellite laboratories at each research institute. These laboratories are not just for collaborative research, but they also provide young researchers at WPI-MANA an international research training ground, with satellite PIs working as their mentors.

In 2018, MANA has opened two new satellites. There are now seven satellite laboratories around the world, and the proportion of satellite PIs has exceeded a quarter of the total number of PIs of MANA.

Through the international network built with satellite laboratories, WPI-MANA increases its international presence as a hub institute gathering knowledge, information, and human resources on nanotechnology.





World Premier International Research Center Initiative

The World Premier International Research Center Initiative (WPI) was launched in 2007 by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in a drive to build within Japan "globally visible" research centers that boast a very high research standard and outstanding research environment, sufficiently attractive to prompt frontline researchers from around the world to want to work in them. These centers are given a high degree of autonomy, allowing them to revolutionize conventional modes of research operation and administration in Japan.

World Premier International Research Center Initiative

THIS IS MANA!

Number of Papers
5251
/ 2007-2019

Highly Cited Papers : Top 1%
180
*3.4% of all MANA papers

Patent Registrations
768
/ 2007-2019

Average Journal Impact Factor
6.95
/ 2019

Internationally Co-Authored Papers
66.9%
/ 2019

Mission 3 *"Young Scientists who Challenge Innovative Research"*

Students

NIMS Researchers Supervise Students for Their Degree

NIMS deals with the operation of international graduate programs. We strive to deliver a support structure to foster students, through collaborations with the world's top level universities in Japan and across the world. This initiative seeks to enhance the academic level and the environment of NIMS, encompassing an aspiration towards thereby contributing to further development of the materials science and industry in Japan.

NIMS Internship Program

The NIMS Internship Program gives students in universities, graduate schools and technical colleges in Japan and other countries oppotunities to perform research at NIMS for up to 90 days. Especially at WPI-MANA, a globally open research center, the possibility to profit from a wide-reaching human network is an important merit for students. NIMS also offers financial support to students who are recognized as particularly outstanding.

NIMS Joint Graduate School Program

In this unique graduate program based on agreements with Japanese universities, the selected NIMS researchers are assigned as university professors who supervise those university postgraduate students. The students are able to conduct research using the advanced facilities in an internationally acclaimed research environment, while they study towards getting a degree. When obtaining their degree and professional recognition and skills, many of the program alumni have careers in materials science.

NIMS Graduate Research Assistantship (NIMS Junior)

NIMS offers the NIMS Graduate Research Assistantship to graduate students who aspire to a career as researchers in materials science. The monthly stipend is not paid for taking the university coursework. However, if you are enrolled in the NIMS Joint Graduate School Program, the duties and responsibilities of the research assistantship are designed to be consistent with the student's research activities towards obtaining a degree. Those students appointed as NIMS Junior Researchers will be able to gain insight into their research career by hands-on experience of working on the latest research projects, without financial strain.

International Cooperative Graduate Program

The International Cooperative Graduate Program (ICGP) is a program that accepts graduate students from overseas universities with which NIMS concluded an International Cooperative Graduate Program (ICGP) agreement. NIMS can accept doctoral students for six months to a year to carry out collaborative research with the partner universities. Students can conduct part of their thesis work at NIMS with the co-supervision by the staff of NIMS. NIMS accepts about 30 students from partner universities each year.

Researchers

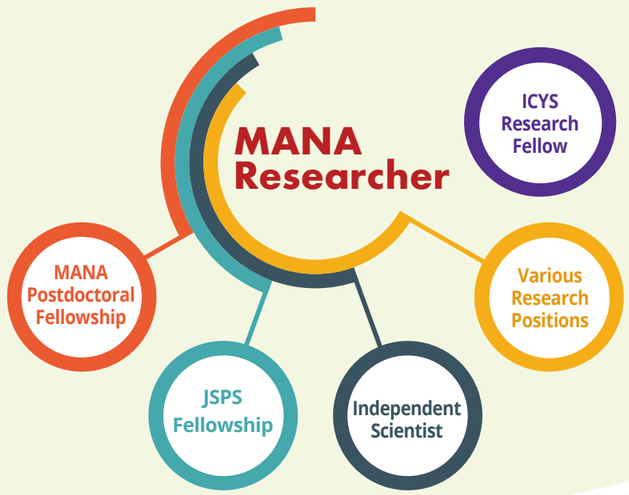
Ways to Perform Research at MANA

MANA Researcher

WPI-MANA looks for scientists who conduct fundamental research with high originality under the concept of "nanoarchitectonics." We update the recruitment information through WPI-MANA website: MANA Postdoctoral Fellows, Independent Scientists and various research posts.

International Center for Young Scientists (ICYS)

Talented young multinational researchers are gathering to conduct research independently. ICYS researchers are expected to pursue various aspects of interdisciplinary materials research in close collaboration with NIMS mentor researchers.



Become a MANA Alumnus

MANA alumni are active in various fields.

NIMS Permanent Positions
Universities
Research Institutes
Companies
etc.

THIS IS MANA!

Around MANA

Doho Park, located several minutes' walk from MANA, is recommended for refreshment when your brain is tired. There are nice restaurants and bakeries around the park. The famous mega parfait and latte art cappuccino are what you just can't miss! (MANA Latte Art Cappuccino by Coffee Factory)




Support System

Support

MANA has an internationally-visible research environment including the organization of a multinational group of young researchers and in the use of English as the official language. MANA has realized an interdisciplinary research environment, which has been promoted in the International Center for Young Scientists (ICYS) established in 2003.

Namiki Foundry

Facilities at the Namiki Foundry Station cover forefront core-techniques of materials science. They are available to researchers from all over the world and for research on diverse materials. Namiki Foundry Station also provides attentive support by experienced technical staff.

Full Support in English

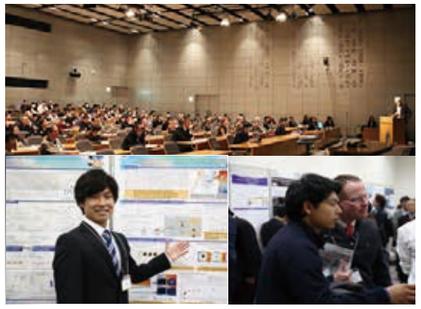
MANA achieves internationalization at all levels by using English as the common language. Administrative staff, fluent in English, assist foreign researchers. Sometimes the preparation of documents that require correspondence in Japanese are necessary in the course of research. They are handled by administrative staff.

Orientations & Classes

For new reseachers there are orientations, laboratory tours and Japanese classes. The orientation provides information that is needed to conduct research at MANA. Laboratory tours are offered to introduce NIMS research facilities to the researchers.

Seminars & Symposia

Young scientists benefit from international collaboration, such as seminars and international symposia. Seminars are frequently given by MANA researchers and visiting outstanding scientists. At the yearly MANA International Symposium, young scientists can present their research.



THIS IS MANA!

Culture Classes

At Ninomiya House, where many MANA foreign researchers are staying, various Japanese culture classes are held. The classes are also open to non-residents of Ninomiya House. This is a great way to experience Japanese culture and make new friends.

Organization

Director

Takayoshi Sasaki

Deputy Director/ Administrative Director

Tomonobu Nakayama

Deputy Director

Yutaka Wakayama

- Nano-Materials Field
- Nano-Systems Field
- Nano-Theory Field
- Fellows
- Electro Active Materials Team
- Managing Researcher
- Independent Scientists
- ICYS-WPI-MANA Research Fellow

Administrative Office

- General Affairs Team
- Planning and Outreach Team

Advisors

M. Aono
Former MANA Director, MANA Executive Advisor

J-M. Lehn
Professor, University of Strasbourg, Nobel Laureate in Chemistry (1987)

C. N. R. Rao
Honorary President, Jawaharlal Nehru Center for Advanced Scientific Research

T. Kishi
Former NIMS President

H. Fukuyama
Director General, Research Institute for Science and Technology, Tokyo University of Science

★ Advisors, including Nobel Laureates and prominent researchers, draw on their extensive experience to provide valuable advice to WPI-MANA scientists.

4 Grand Challenges

- Nano Perceptive System
- Nanoarchitectonic Artificial Brain
- Practical Artificial Photosynthesis
- Room-Temperature Superconductivity

Personnel Composition

	Number	Non-Japanese	Female
PIs	**23**	**9**	**2**
Group Leaders	**10**	**2**	**0**
Faculty Scientists	**66**	**11**	**5**
Postdoctoral Researchers	**70**	**45**	**9**
Junior Researchers	**37**	**34**	**9**
Administrative and Technical Staff	**59**	**2**	**49**
Total	**265**	**103**	**74**

(as of January 2021)

MANA Member List

MANA Principal Investigators (PIs)

Nano-Materials


T. Mori　T. Sasaki　Y. Yamauchi


D. Golberg　K. Ariga　J. Ye


N. Fukata　J. Takeya　Z. L. Wang


G. Decher　T. Mallouk

Nano-Systems


K. Terabe　T. Nakayama　K. Tsukagoshi


X. Hu　Y. Takano　T. Nagao


J. Gimzewski　C. Joachim　F. Winnik

Nano-Theory


T. Miyazaki　Y. Tateyama　D. Bowler

★ Field Coordinator
● Satellite PI
● Cross Appointment

NIMS Distinguished Fellow


H. Hosono

NIMS Fellow


T. Taniguchi

Research Groups

Nano-Systems

Nanoionic Devices Group


K. Terabe, Group Leader　T. Tsuruoka, Chief Researcher　M. Sakurai, Principal Researcher　T. Tsuchiya, Principal Researcher

Thin Film Electronics Group


K. Tsukagoshi, Group Leader　T. Nabatame, Chief Researcher　S. Kato, Senior Researcher

Nano-System Theoretical Physics Group


X. Hu, Group Leader　T. Kariyado, Senior Researcher

Nano Frontier Superconducting Materials Group


Y. Takano, Group Leader　H. Takeya, Chief Researcher　K. Terashima, Senior Researcher

Quantum Device Engineering Group


Y. Wakayama, Group Leader　S. Nakaharai, Principal Researcher　R. Hayakawa, Senior Researcher　Y. Shingaya, Senior Researcher

Surface Quantum Phase Materials Group


T. Uchihashi, Group Leader　T. Yamaguchi, Principal Researcher　R. Arafune, Senior Researcher　K. Nagaoka, Senior Researcher

Photonics Nano-Engineering Group


T. Nagao, Group Leader　S. Ishii, Principal Researcher

Quantum Material-Properties Group


T. Terashima, Group Leader　M.Kohno, Chief Researcher　M. Tachiki, Principal Researcher　H. Yamase, Principal Researcher　S. Ooi, Senior Researcher

Managing Researcher


T. Nakayama, Managing Researcher

Electro-Active Materials Team


H. Hosono, NIMS Distinguished Fellow　H. Mizoguchi, Special Researcher

NIMS Fellow


T. Taniguchi, NIMS Fellow

Nano-Materials

Thermal Energy Materials Group


T. Mori, Group Leader　T. Aizawa, Chief Researcher　M. Goto, Chief Researcher　Y. Michiue, Chief Researcher　N. Tsujii, Principal Researcher　I. Ohkubo, Senior Researcher　M. Tachibana, Senior Researcher

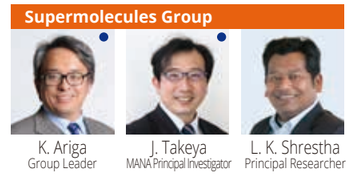
Nanoparticle Group


N. Shirahata, Group Leader　H. T. Sun, Principal Researcher

Soft Chemistry Group


T. Sasaki, Group Leader　Y. Ebina, Principal Researcher　N. Sakai, Senior Researcher　S. Tominaka, Senior Researcher　M. Osada, NIMS Visting Researcher　Deng Xiao, Researcher

Supermolecules Group


K. Ariga, Group Leader　J. Takeya, MANA Principal Investigator　L. K. Shrestha, Principal Researcher

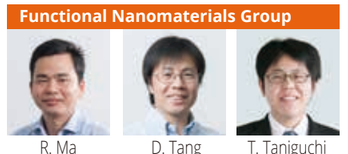
Nanotubes Group


D. Golberg, Group Leader　M. Mitome, Chief Researcher, Acting Group Leader　N. Kawamoto, Principal Researcher

Mesoscale Materials Chemistry Group


Y. Yamauchi, Group Leader　Y. Ide, Principal Researcher, Acting Group Leader　J. Henzie, Principal Researcher

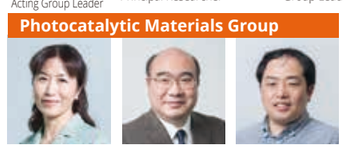
Functional Nanomaterials Group


R. Ma, Group Leader　D. Tang, Senior Researcher　T. Taniguchi, Senior Researcher

Frontier Molecules Group


T. Nakanishi, Group Leader　S. Ishihara, Principal Researcher　K. Tashiro, Principal Researcher　K. Nagura, Researcher

Photocatalytic Materials Group


J. Ye, Group Leader　M. Oshikiri, Principal Researcher　T. Kako, Senior Researcher

Nanostructured Semiconducting Materials Group


N. Fukata, Group Leader　W. Jevasuwan, Senior Researcher　R. Matsumura, Researcher

Functional Chromophores Group


J. Hill, Group Leader　A. Bandyopadhyay, Senior Researcher　J. Labuta, Senior Researcher

Quantum Solid State Materials Group


K. Yamaura, Group Leader　A. Belik, Principal Researcher　Y. Tsujimoto, Senior Researcher

Nano-Theory

First-Principles Simulation Group


T. Miyazaki, Group Leader　J. Nara, Principal Researcher　A. Nakata, Senior Researcher　R. Tamura, Senior Researcher

Emergent Materials Property Theory Group


A. Tanaka, Group Leader　Y. Nonomura, Principal Researcher　I. Solovyev, Principal Researcher

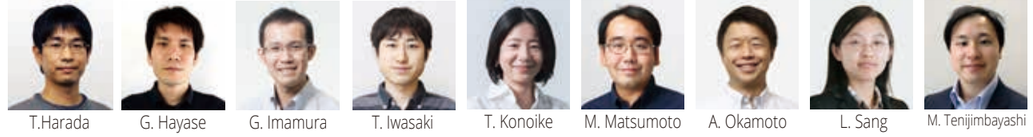
Computational Nanoscience Group


M. Arai, Group Leader　W. Hayami, Principal Researcher　J. Inoue, Principal Researcher　K. Kobayashi, Principal Researcher　S. Suehara, Principal Researcher

ICYS-WPI-MANA Research Fellow


Aadrian Diaz Alvarez

Independent Scientists


T.Harada　G. Hayase　G. Imamura　T. Iwasaki　T. Konoike　M. Matsumoto　A. Okamoto　L. Sang　M. Tenijimbayashi

(as of January 2021)