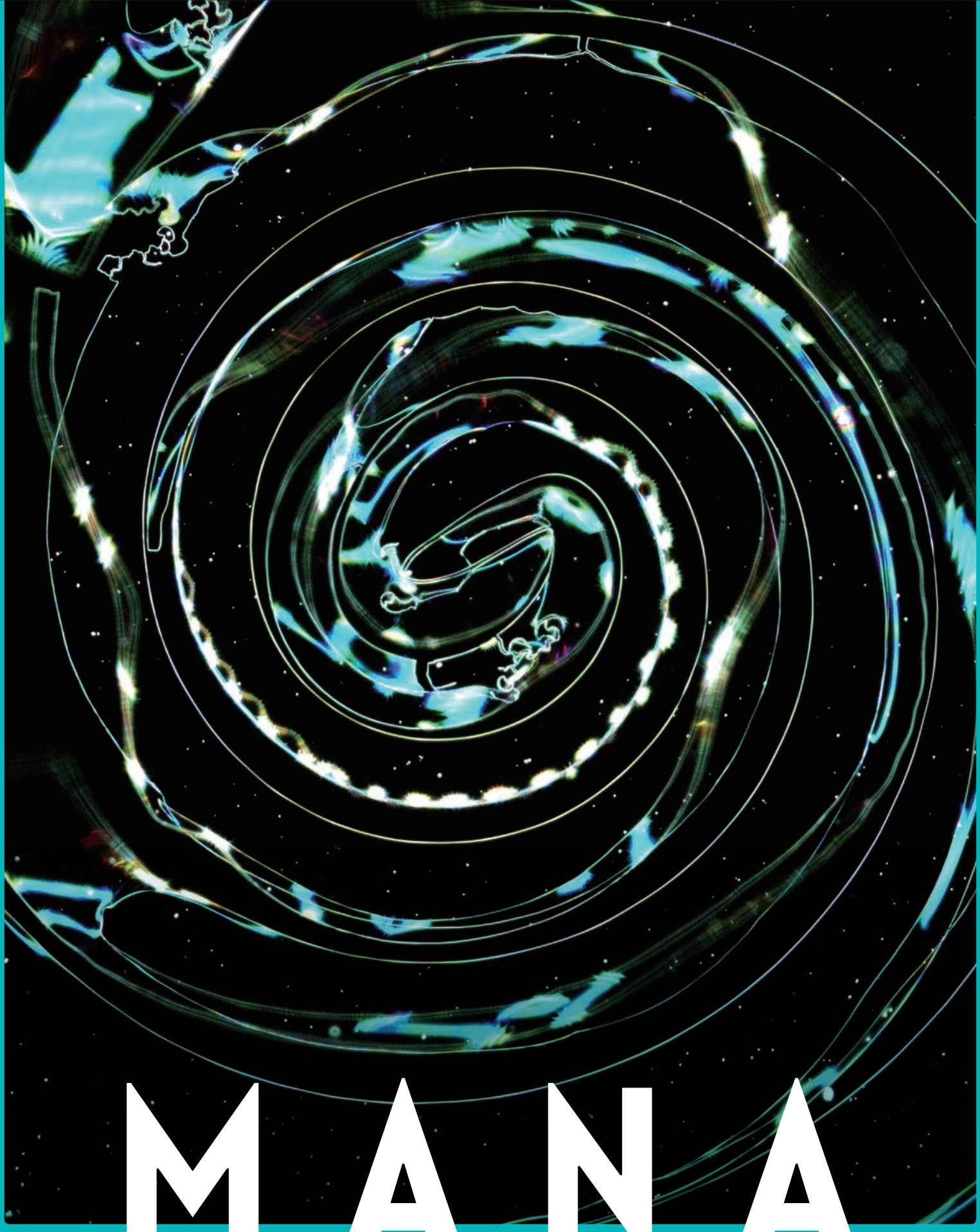


MANA

INTERNATIONAL CENTER FOR
MATERIALS NANOARCHITECTONICS

VISION

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

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 "

Cover MA NA NO ART: [Perfect Imperfection]
Mesoporous SiO_2 films with hierarchical cracks, observed under polarized microscope.
by Victor Malgras (MANA/NIMS Postdoctoral researcher)

A Message from the Director

Takashi Taniguchi

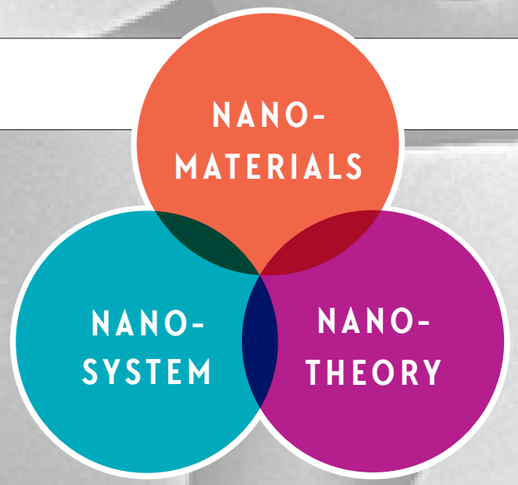
The International Center for Materials Nanoarchitectonics (WPI-MANA) has been promoting bottom-up basic research on Nanoarchitectonics, a unique technology for creating nanomaterials in nanotechnology and materials research. The purpose of this project is to discover new materials and new functions, disseminate excellent basic research results, and create seeds for innovation in a variety of fields by realizing "Material Nanoarchitectonics". This concept is used to create new materials by using precision synthesis, integration, linking, and compositing of nanoscale components under interfacial control to achieve advanced functions. We have produced many original results based on nanosheets, atomic switches, and metallic nanoporous materials, and we have also recently developed novel applications such as high-performance thermoelectric materials, neuromorphic devices, and topological photonic materials. Furthermore, we are focusing on fundamental research for the creation of quantum materials that will make full use of the nanotechnology resulting from Nanoarchitectonics.

As one of the first five WPI research centers established by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 2007 under the World Premier International Research Center (WPI) Program, WPI-MANA aims to become a nanotechnology hub with an international research environment. As a leading international research center in the field of nanotechnology and materials science, we have been engaged in challenging research activities for more than a decade, building a broad research network through collaboration with world-class laboratories located in MANA satellites, and through joint research with many overseas universities and research institutions. In addition, we have established a system where many researchers and students from all over the world gather to conduct research. This is reflected in the fact that more than 400 researchers who have experienced research life at MANA are now active as MANA alumni around the world.

While emphasizing the three points of originality of research, international perspectives, and mutual understanding and collaboration that lead to innovation, we also realize that beyond essential basic research activities, any results should be returned to society for its improvement. "Achievements" are not limited to solving the most recent problems, but also include fundamental findings and discoveries that lead to breakthroughs in research, and for this reason I believe it is important to nurture research from a long-term perspective, and also to properly train young researchers. We will continue our efforts to further deepen our understanding of "Nanoarchitectonics" and to develop new themes in quantum materials research based on this concept. I would like to request the warm support of all concerned.

Takashi Taniguchi

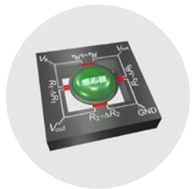
What is "Nanoarchitectonics"?



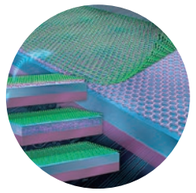
Nanoarchitectonics (nanoarchitecture) is a concept that aims to create innovative new materials by combining "nano-parts" made of atoms and molecules to discover new and unexpected phenomena.

Nano is one billionth of a meter, or the size of an atom or molecule, and materials behave in a completely different way from microtechnology (one millionth of a meter), which has contributed to the microfabrication of semiconductors. By taking advantage of this property, we can construct new materials that function by linking nanostructures together. This new concept of nanotechnology is what we call "Nanoarchitectonics".

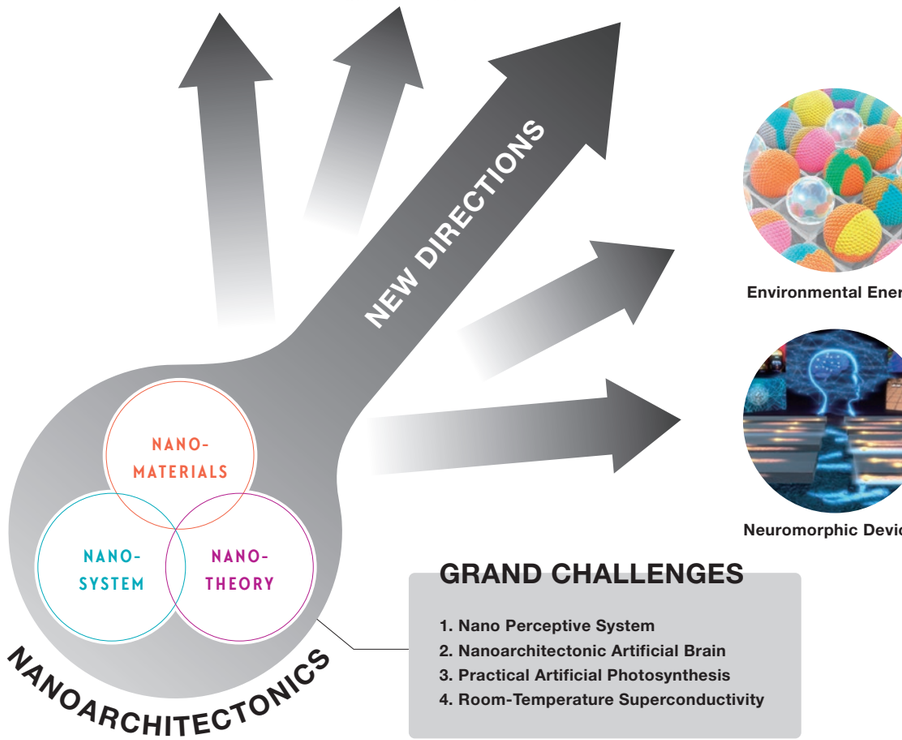
The Future with Nanoarchitectonics



Artificial Sensation



Quantum Materials



Environmental Energy

Neuromorphic Devices

GRAND CHALLENGES

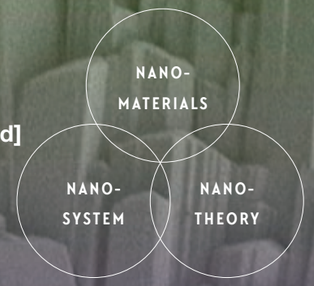
1. Nano Perceptive System
2. Nanoarchitectonic Artificial Brain
3. Practical Artificial Photosynthesis
4. Room-Temperature Superconductivity

FIELDS OF MANA

At MANA, there are three fields
of nanoarchitectonics that are indispensable.

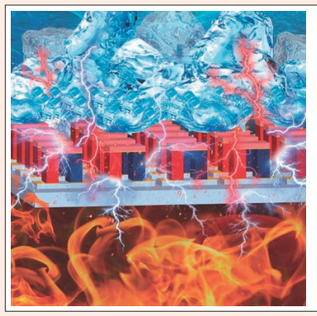
[Nano-Materials Field for making nano-components]
[Nano-System Field for combining nano-components]
[Nano-Theory Field to predict the movement of the nano world]

Cross-disciplinary cooperation
and fusion research between researchers
from the three fields is commonplace.



NANO-MATERIALS

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



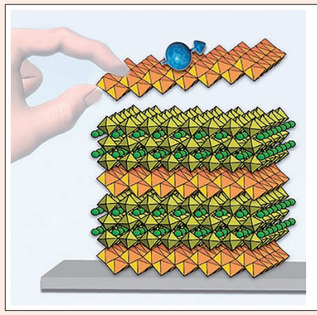
Thermal Energy Materials Group

Field Coordinator, MANA PI, Group Leader: Takao Mori

Novel thermoelectric materials and enhanced control over thermal energy

To realize the 200-year dream of wide-spread thermoelectric power generation, we develop new principle high-performance thermoelectric materials. To realize advanced thermal management, we strive for fundamental elucidation, evaluation, and novel control over thermal transport.

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



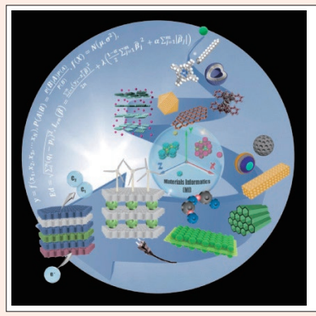
Soft Chemistry Group

MANA PI, Group Leader, Takayoshi Sasaki

Design of new functional materials by organizing 2D nanosheets

Layered metal oxides are delaminated colloidal single layers and resulting nanosheets are assembled via solution processes into a range of nano- to mesoarchitectures, expecting development of advanced functionalities including energy storage.

[KEYWORDS] Exfoliation, 2D Nanosheets, Layer-by-Layer Assembly, Superlattice Heterostructures, Energy Conversion and Storage



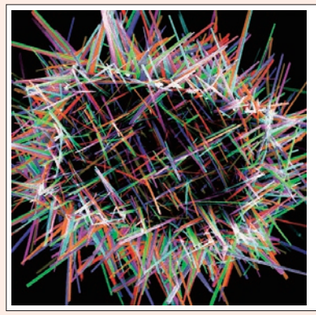
Mesoscale Materials Chemistry Group

MANA PI, Group Leader: Yusuke Yamauchi

Inorganic total synthetic chemistry / Conductive porous materials

We create novel inorganic nanosolids containing internal nanospaces, and develop several methodologies for their effective integration with the aim of exploiting functions obtained based on the synergistic fusion of various supramolecular, photonic, and magnetic behaviors occurring in nanospace.

[KEYWORDS] Inorganic Synthetic Chemistry, Inorganic Material Chemistry, Self-Organization, Hybrid Materials



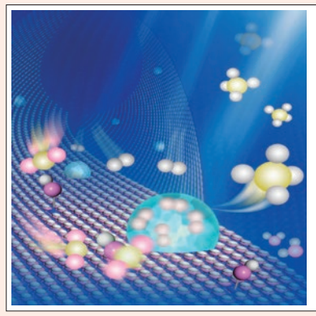
Supermolecules Group

MANA PI, Group Leader: Katsuhiko Ariga

World greatest research by supramolecular chemistry and surface science

Supermolecules are formed through non-covalent interactions between molecules. They can exhibit novel functions that are not available from their individual components. Our research emphasizes applications including sensors, drug delivery, energy, and environment.

[KEYWORDS] Supramolecular Chemistry, Surface Science, Self-Organization, Molecular Machine, Nanocarbon



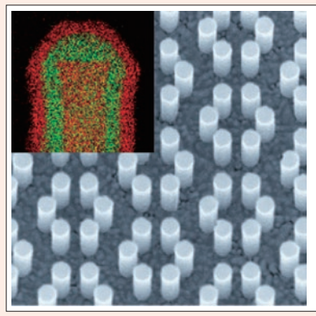
Photocatalytic Materials Group

MANA PI, Group Leader: Jinhua Ye

Realization of artificial photosynthesis

Inspired by the basic mechanism in nature photosynthesis, we are challenging the realization of highly efficient artificial photosynthesis, by rational design and engineering of the electronic structure and surface/interface structure of nano metal / inorganic / organic materials.

[KEYWORDS] Photocatalysis, Solar Energy Conversion, Nano Metal/Semiconductor, CO_2 Reduction, Solar Fuel Production



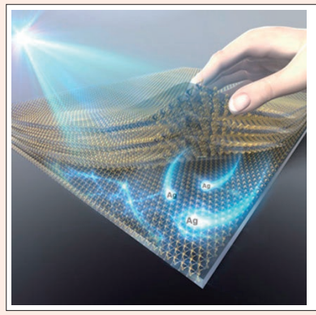
Nanostructured Semiconducting Materials Group

MANA PI, Group Leader: Naoki Fukata

New functions in semiconductor nanomaterials and device applications

We aim to develop semiconductor nanomaterials and devices that exhibit novel and superior characteristics not found in bulk materials by functionalizing the structure of semiconductor materials and adding new functions.

[KEYWORDS] Nanowires, Semiconductors, Electronic and Energy Related Devices



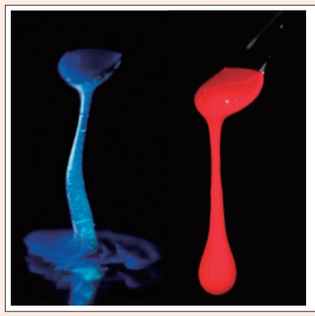
Functional Nanomaterials Group

Group Leader: Renzhi Ma

Creation of New Nanomaterials for Novel Functions

We are creating new nanomaterials (nanosheets, nanotubes, etc.) with a wide variety of compositions and structures. We aim to develop novel functions in versatile areas such as (photo)electronics, energy storage and conversion, etc.

[KEYWORDS] Nanosheets, Nanotubes, Energy Storage and Conversion, Catalysts, Nanoelectronics



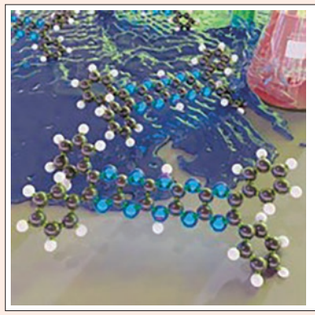
Frontier Molecules Group

Group Leader: Takashi Nakanishi

Stimuli-responsive novel molecular systems and their sensor applications

Our research focuses on a development of novel functional molecular soft materials towards sensor and power generating systems, that can response to light, heat, gaseous molecules, or micro vibration.

[KEYWORDS] Novel Molecular Design, Functional Molecular "Liquids", Sensors, Molecular Sequences, π-Conjugated Giant Molecules



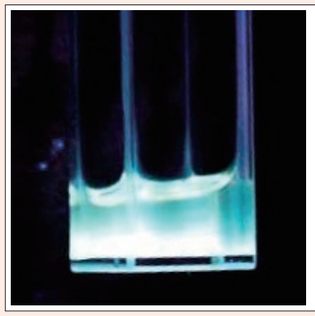
Functional Chromophores Group

Group Leader: Jonathan Hill

New functional chromophores for sensing and self-assembly

Our work is concerned with molecular design and the synthesis of novel functional materials for sensing, catalysis and their optical properties. We study the optical interactions of new chromophore molecules while in solution or contained in self-assembled structures.

[KEYWORDS] Sensing, Catalysis, Chirality, Chromophore, Self-Assembly



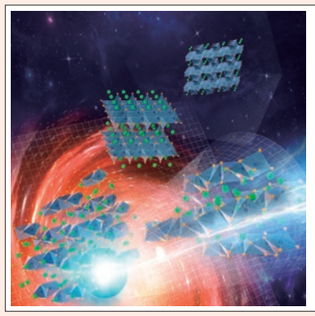
Nanoparticle Group

Group Leader: Naoto Shirahata

Colloidal Synthesis of Nontoxic Nanocrystals for Next-Generation Photonics

We develop new materials via chemical approaches which absorb and emit the light with wavelength-selectivity by controlling the energy structure of crystals composed of environmentally friendly elements to contribute to the next-generation photonics and optical medicine.

[KEYWORDS] Colloidal Nanocrystals, Optoelectronics, Nanobiomedicine



Quantum Solid State Materials Group

Group Leader: Kazunari Yamaura

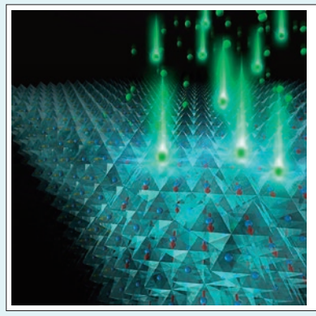
Search for new oxide-based materials with high functionality

Contribute to quantum materials research by promoting high-pressure synthesis, crystal growth, precise structural analysis, and fundamental properties measurement of new materials with qualitatively different ferroelectricity, excellent quantum functionality, and so on.

[KEYWORDS] Polar Metals, Chiral Dielectrics, Transition Metal Oxides, Mixed Anions, High-Pressure-Crystal Growth

NANO-SYSTEM

"Nano-System" creates unique functions by interacting controlled nanostructures and fabricates various advanced devices in artificial intelligence, quantum, energy and environment fields.



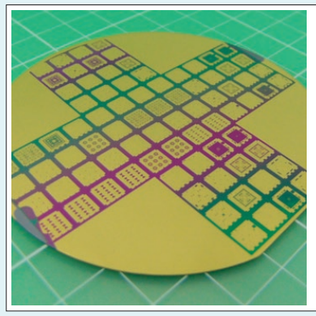
Nanoionic Devices Group

Field Coordinator, MANA PI, Group Leader: Kazuya Terabe

Creation of nanoionic devices for brain-type computer

Interesting characteristics and functions can be obtained by controlling the ion transport in solids. We aim to create nanoionics devices using these properties and to apply them to brain-type computer devices.

[KEYWORDS] Artificial Synapse, Atomic Switch, Decision-Making Device, Neuromorphic System, Artificial Intelligence Hardware



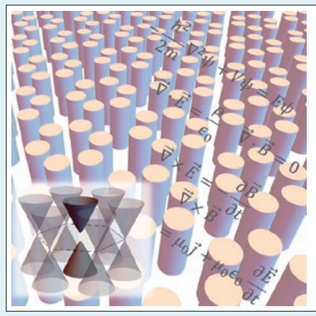
Thin Film Electronics Group

MANA PI, Group Leader: Kazuhito Tsukagoshi

Nanoelectronics based on Atomically-thin and Molecular scale 2D films

We develop novel functions by forming ultra-thin films such as two-dimensional crystals with nanomaterials and molecules, and by forming junctions with stacked structures. The goal is to create functional elements by using nanofilms and microfabrication.

[KEYWORDS] Atomically-Thin Film, Molecular Scale Thin Film, 2D Materials, Electric Properties, Electronics



Nano-System Theoretical Physics Group

MANA PI, Group Leader: Xiao Hu

Exploration of material topology for innovative quantum functionality

We are engaging in theoretical study on novel band topology of materials and wave systems, and aiming to achieve novel topological quantum features and innovative quantum functionality by exploiting advanced nanotechnology.

[KEYWORDS] Topology of Matter, Topological Photonic Crystal, 2D Materials, Material Design, Majorana Quasiparticle

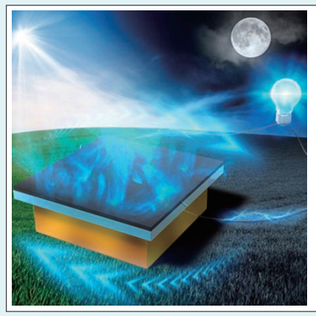
Nano Frontier Superconducting Materials Group

MANA PI, Group Leader: Yoshihiko Takano

Discovery of new superconductors and functional materials using materials informatics

Exploiting materials data and machine learning approach, we explore materials that might not be accessible by researchers' conventional ideas.We aim to discover emerging functionality in materials, such as room temperature superconductivity, by our original diamond anvil cells.

[KEYWORDS] Superconductivity, Magnetism, High Pressure, Materials Informatics, Machine Learning



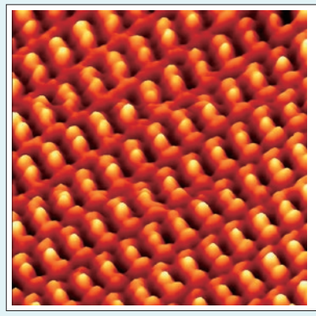
Photonics Nano-Engineering Group

MANA PI, Group Leader: Tadaaki Nagao

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

We are developing ubiquitous devices that utilizes solar and thermal radiation for harvesting energy from our environment as well as recognizing and distinguishing the things around us.

[KEYWORDS] Infrared Plasmonics, Perceptive Device, Spectrally-Controlled Infrared Heaters, Radiative Cooling, Solar Heat Harvesters



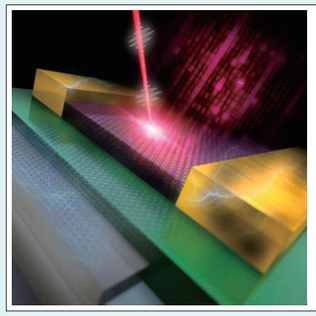
Surface Quantum Phase Materials Group

Group Leader: Takashi Uchihashi

Surface/Interface-based quantum materials and their functionalities

The surfaces and interfaces of materials are important playgrounds for realizing quantum functionalities. We aim at designing and creating new quantum materials at surfaces and interfaces from the atomic levels to explore their unknown material properties and functionalities.

[KEYWORDS] Surface, Superconductivity, Quantum Transport, Scanning Tunneling Microscopy



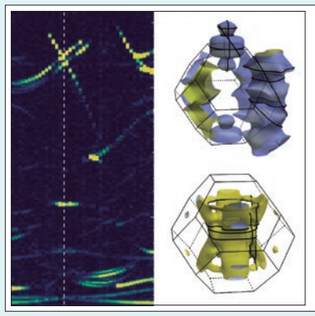
Quantum Device Engineering Group

Group Leader: Yutaka Wakayama

Exploration for novel quantum functional devices

We have been exploring novel functional electronic devices by bridging fundamental quantum properties and practical device engineering to control spin, electrons, and valley currents by assembling low-dimensional nanomaterials for breakthrough in nanoelectronics.

[KEYWORDS] Tunneling Device, Molecular Electronics, Multivalued Logic Circuits, Spin-Valleytronics



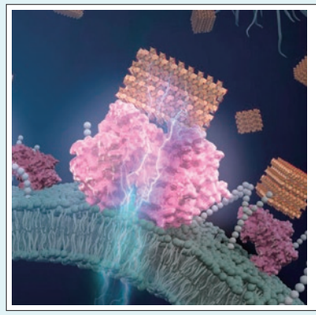
Quantum Material-Properties Group

Group Leader: Taichi Terashima

Novel electronic properties in superconductors and topological materials

We investigate electronic properties in superconductors and topological materials through low-temperature high-magnetic-field measurements as well as through theoretical studies. We are also interested in quantum vortices in superconductors.

[KEYWORDS] Superconductivity, Vortex, Topological, Strong Correlation, Low Temperature and High Magnetic Fields



Electrochemical Nanobiotechnology Group

Group Leader: Akihiro Okamoto

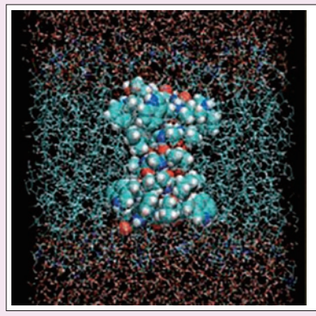
Understanding and control of cells via transmembrane nano electric wires

We aim to understand biological phenomena from the perspective of energy through the development of nanomaterials that enable in vivo monitoring and controlling internal electrical information and cellular activity and functions by extracellular electrode.

[KEYWORDS] Interfacial Electron Transfer, Outer-Membrane Cytochrome, Metallic Nano Particle, Bacteria Sensor, Metal Corrosion

NANO-THEORY

"Nano-Theory" understands phenomena in the nanospace region, predicts new phenomena and creates novel nanostructured materials.



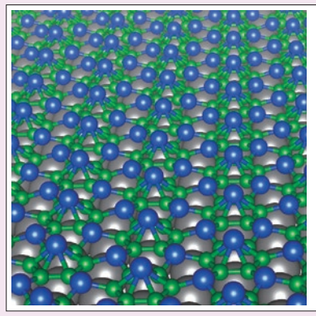
First-Principles Simulation Group

Field Coordinator, MANA PI, Group Leader: Tsuyoshi Miyazaki

Materials Design by First-Principles Simulations and Materials Informatics

We analyze and design the new and exotic properties of nano-scale materials by large-scale first-principles electronic structure simulations and materials informatics.

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



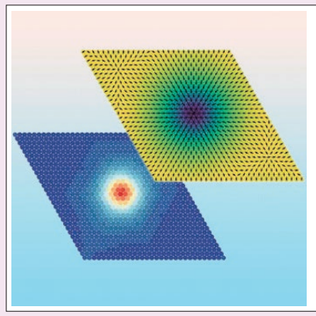
Computational Nanoscience Group

Group Leader: Masao Arai

Theoretical and computational investigation of nanomaterials

Artificially created or self-organized low dimensional system may exhibit exotic properties. With theoretical or computational methods, we study low-dimensional nanomaterials.

[KEYWORDS] First-Principles Calculations, Low Dimensional System, Artificial Structure



Emergent Materials Property Theory Group

Group Leader: Akihiro Tanaka

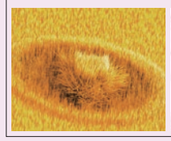
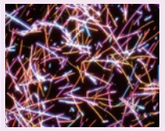
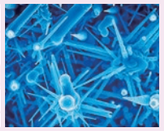
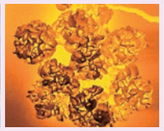
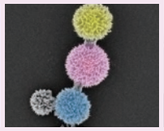
Theoretical investigation of novel quantum functions in materials

Electrons and spins within materials are often subject to fictitious, intrinsic electromagnetic and / or gravitational fields. We explore their consequences, focusing on novel quantum functions.

[KEYWORDS] Topological Materials, Quantum Magnets, First Principle Calculations, Statistical Mechanical Modelling, Berry Phase Effects

MA·NA·NO·ART

It is a work of art processed from the data obtained by MANA researchers during their experiments. We hope that the beautiful artwork will inspire creativity and new ideas. The work is displayed in the building, and the most popular pieces are used as posters and brochure covers.


A WIDE VARIETY OF RESEARCHERS

These are the researchers who are leading the world with their unique and remarkable results on novel themes.

NIMS Distinguished Fellow

Hideo Hosono

Electro-Active Materials

Creation of novel conceptional materials based on controlled electrons and their application (TFT, Catalyst)

NIMS Fellow

Takashi Taniguchi

Materials Synthesis Under High Pressure, High Quality Single Crystals

Impurity control under high pressure and synthesis of functional materials

Managing Researcher

Tomonobu Nakayama

Multiple-Probe SPM, Neuromorphic Materials

Property characterization of nanomaterials, Development of neuromorphic materials through integration of nanofunctionalities

Independent Scientist

Gaku Imamura

Sensor, Machine Learning

Development of an Olfactory Sensor System

Independent Scientist

Takuya Iwasaki

2D Material, Quantum Device

Development of future electronic devices and information processing technology using 2D material stacking structures

Independent Scientist

Liwen Sang

GaN, Interface Engineering

Interface engineering in III-V nitride semiconductors toward high-efficiency devices

Independent Scientist

Mizuki Tenjimbayashi

Wetting, Soft Matter

Wetting Dynamics for Functional Materials and Surfaces

Independent Scientist

Takayuki Harada

Thin Film, Electrical Transport

Research on thin-film heterostructures and their functional applications

Independent Scientist

Gen Hayase

Aerogels, Organic-Inorganic Hybrids

Fabrication of high-strength nanocomposite aerogel for thermal insulation

Independent Scientist

Michio Matsumoto

Multi-Dimensional Polymers, Atom-, Molecular-Arrangement

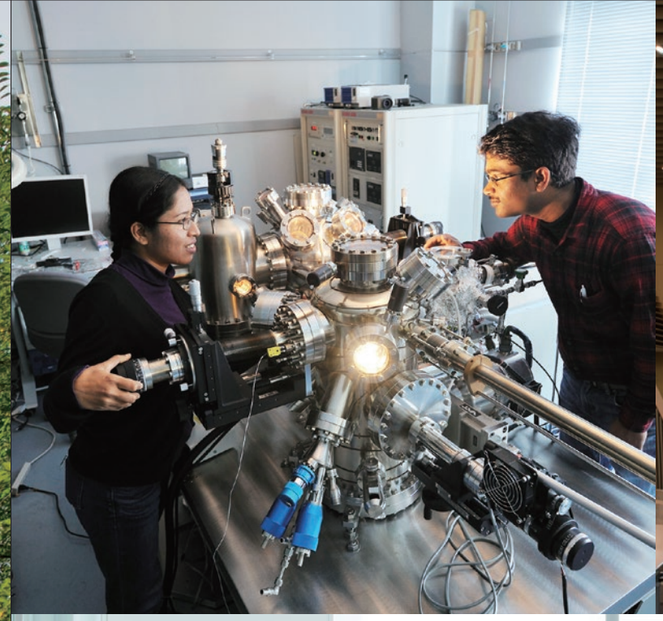
Multidimensional polymer synthesis – Connect atoms of Avogadro's number in a precise order, create unique materials functions

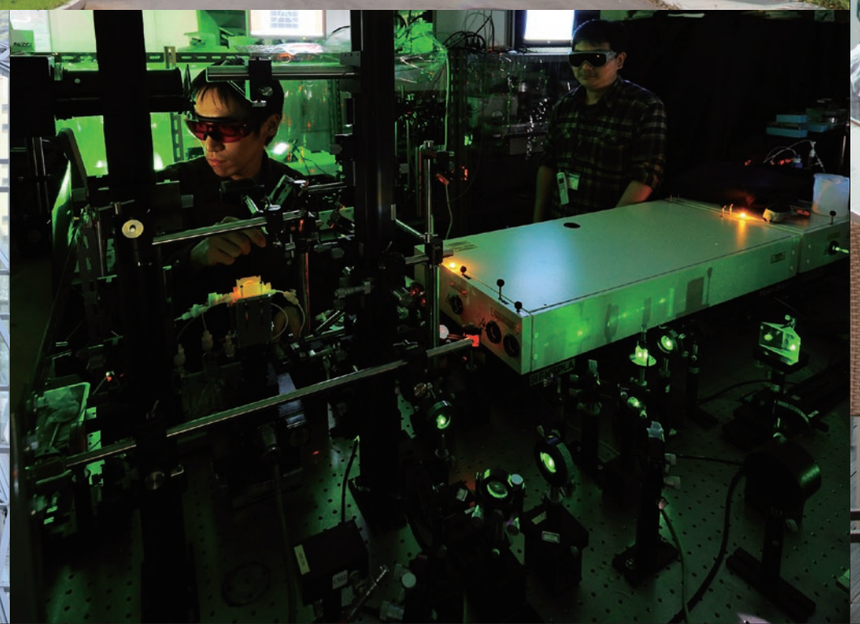
ICYS-WPI-MANA Research Fellow

Adrian Diaz-Alvarez

Neuromorphic, Nanowires, Brainlike Information Processing

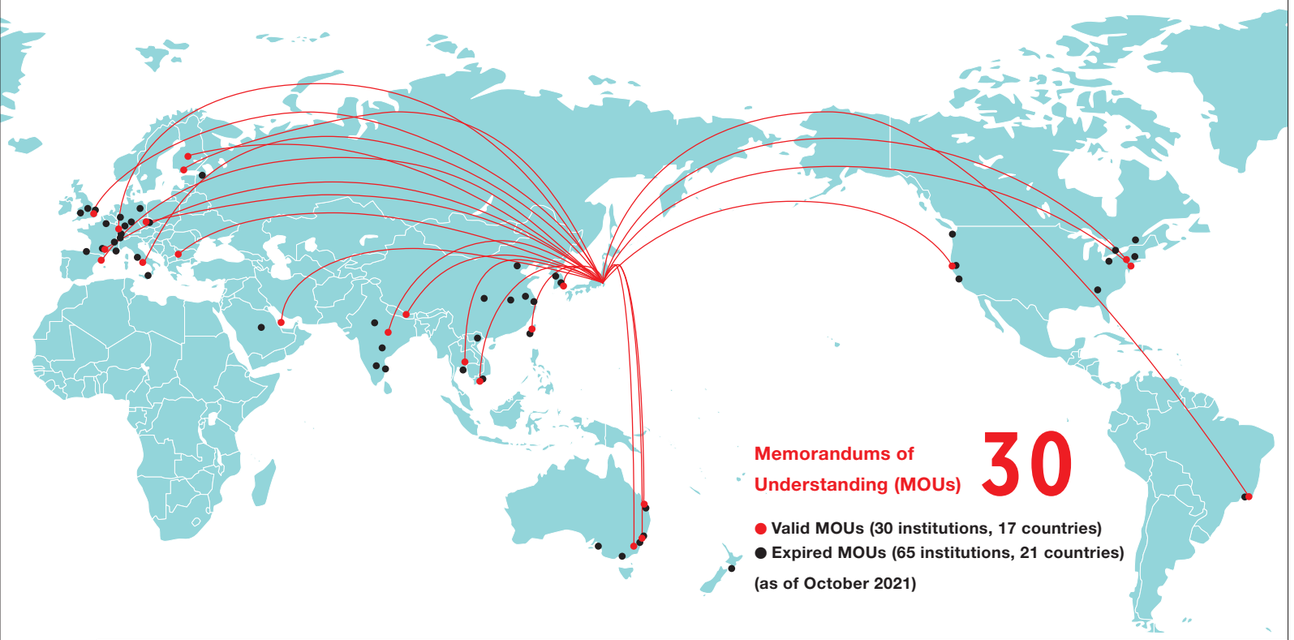
Brain-like interactions in Neuromorphic Nanowire Networks





GLOBALISATION

Foreign Partner Institutions



MANA Figures

5,898
/ 2007-2020

Number of Papers

Patent Registrations

861
/ 2007-2020

HIGHLY CITED PAPERS
4.0%
Highly Cited Papers: Top 1%
/ 2016-2020

Average Journal Impact Factor

8.97
/ 2020

69.1%
/ 2020
Internationally Co-Authored Papers

Personnel Composition

	Number	Non-Japanese	Female
PIs	22	8	1
Group Leaders	11	2	0
Faculty Scientists	67	12	5
Postdoctoral Researchers	70	44	8
Junior Researchers	37	29	8
Administrative and Technical Staff	63	2	51
Total	**270**	**97**	**73**

(as of January 2022)

MANA Satellite Network

MANA introduced the "Satellite" system to implement the internationalization of our research environment. We invited prominent researchers as Satellite PIs, and established MANA satellites at each research institute to strongly support world-class research of MANA. These satellites also provide young researchers at MANA an international research training ground, with satellite PIs working as their mentors.

University College London
Large-scale Order-N DFT Calculations
NANO-THEORY
David Bowler

Strasbourg University
Fuzzy Assembly
NANO-MATERIALS
Gero Decher

University of Pennsylvania
Nanoscale Chemistry
NANO-MATERIALS
Thomas E. Mallouk

The French National Centre for Scientific Research
Molecular Device Engineering
NANO-SYSTEM
Christian Joachim

Queensland University of Technology
Transmission Electron Microscopy, Nanotubes
NANO-MATERIALS
Dmitri Golberg

University of California, Los Angeles
Neuromorphic Network
NANO-SYSTEM
James K. Gimzewski

Georgia Institute of Technology
Emerging Devices for Energy Generation
NANO-MATERIALS
Zhong Lin Wang

World Premier International Research Center Initiative

MANA is an international research center established within NIMS with the support of the World Premier International Research Center Initiative (WPI), a project initiated by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 2007. After 10 years of support by the program, MANA became the "WPI Academy" to make great strides as the world's leading nanotechnology materials base.

RESEARCHERS

Research Groups

Nano-Materials

Thermal Energy Materials

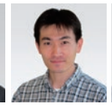

T. Mori
Group Leader


M. Goto
Chief Researcher


Y. Michiue
Chief Researcher


I. Ohkubo
Principal Researcher


N. Tsujii
Principal Researcher


M. Tachibana
Senior Researcher

Mesoscale Materials Chemistry


Y. Yamauchi
Group Leader


Y. Ide
Principal Researcher/ Acting Leader


J. Henzie
Principal Researcher

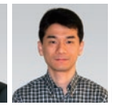

M. Eguchi
Senior Researcher

Soft Chemistry


T. Sasaki
Group Leader


Y. Ebina
Principal Researcher


S. Tominaka
Principal Researcher


N. Sakai
Senior Researcher


M. Osada
NIMS Invited Researcher

Supermolecules


K. Ariga
Group Leader


J. Takeya
MANA Principal Investigator


L. K. Shrestha
Principal Researcher

Nanoparticle


N. Shirahata
Group Leader


H. T. Sun
Principal Researcher

Photocatalytic Materials


J. Ye
Group Leader


M. Oshikiri
Principal Researcher


T. Kako
Senior Researcher

Nanostructured Semiconducting Materials


N. Fukata
Group Leader


W. Jevasuwan
Senior Researcher


R. Matsumura
Researcher

Functional Nanomaterials


R. Ma
Group Leader


D. Tang
Senior Researcher


T. Taniguchi
Senior Researcher

Frontier Molecules


T. Nakanishi
Group Leader


S. Ishihara
Principal Researcher


K. Tashiro
Principal Researcher


K. Nagura
Researcher

Functional Chromophores


J. Hill
Group Leader


A. Bandyopadhyay
Principal Researcher


J. Labuta
Senior Researcher

Quantum solid state materials


K. Yamaura
Group Leader


A. Belik
Chief Researcher


Y. Tsujimoto
Senior Researcher

Nano-System

Nanoionic Devices


K. Terabe
Group Leader

T. Tsuruoka
Chief Researcher

M. Sakurai
Principal Researcher

T. Tsuchiya
Principal Researcher

Quantum Material-Properties

T. Terashima
Group Leader

M. Kohno
Chief Researcher

M. Tachiki
Principal Researcher

H. Yamase
Principal Researcher

T. Konoike
Senior Researcher

S. Ooi
Senior Researcher

Surface Quantum Phase Materials

T. Uchihashi
Group Leader

T. Yamaguchi
Principal Researcher

R. Arafune
Senior Researcher

K. Nagaoka
Senior Researcher

Quantum Device Engineering

Y. Wakayama
Group Leader

S. Nakaharai
Principal Researcher

R. Hayakawa
Senior Researcher

Y. Shingaya
Senior Researcher

Photonics Nano-Engineering

T. Nagao
Group Leader

S. Ishii
Principal Researcher

Thin Film Electronics

K. Tsukagoshi
Group Leader

T. Nabatame
Chief Researcher

S. Kato
Senior Researcher

S. Li
Senior Researcher

Nano-System Theoretical Physics

A. Kumatani
NIMS Invited Researcher

X. Hu
Group Leader

T. Kariyado
Senior Researcher

Nano Frontier Superconducting Materials

Y. Takano
Group Leader

K. Terashima
Senior Researcher

Electrochemical Nanobiotechnology

A. Okamoto
Group Leader

X. Deng
Researcher

Nano-Theory

First-Principles Simulation

T. Miyazaki
Group Leader

J. Nara
Principal Researcher

A. Nakata
Senior Researcher

R. Tamura
Senior Researcher

Computational Nanoscience

M. Arai
Group Leader

W. Hayami
Principal Researcher

J. Inoue
Principal Researcher

K. Kobayashi
Principal Researcher

S. Suehara
Principal Researcher

Emergent Materials Property Theory

A. Tanaka
Group Leader

Y. Nonomura
Principal Researcher

I. Solovyev
Principal Researcher

Electro-Active Materials Team

H. Hosono
NIMS Distinguished Fellow

H. Mizoguchi
Sub Team Leader

NIMS Fellow

T. Taniguchi

Independent Scientists

T. Harada

G. Hayase

G. Imamura

T. Iwasaki

M. Matsumoto

L. Sang

M. Tenjimbayashi

ICYS-WPI-MANA Research Fellow

A. Diaz-Alvarez

● Cross Appointment ★ Satellite PI

MANA Principal Investigators (PIs)

Nano-Materials

T. Mori
Field Coordinator

T. Sasaki

Y. Yamauchi

K. Ariga

J. Ye

N. Fukata

J. Takeya

Z. L. Wang
Satellite PI

G. Decher
Satellite PI

T. Mallouk
Satellite PI

D. Golberg
Satellite PI

Nano-System

K. Terabe
Field Coordinator

T. Nakayama

K. Tsukagoshi

X. Hu

Y. Takano

T. Nagao

J. Gimzewski
Satellite PI

C. Joachim
Satellite PI

Nano-Theory

T. Miyazaki
Field Coordinator

Y. Tateyama

D. Bowler
Satellite PI

NIMS Distinguished Fellow

H. Hosono

NIMS Fellow

T. Taniguchi

(January 2022)

THIS IS MANA

Provide a Creative Environment to Foster

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 Joint Graduate School Program

Academic degree program that develops students into specialists under supervision of NIMS researchers

NIMS Graduate Research Assistantship (NIMS Junior)

Support program that allows students to focus on research

NIMS Internship

Provide undergraduate and graduate students with technical experience of cutting-edge research activities in the field of materials and science

International Cooperative Graduate Program

Graduate students from globally renowned graduate schools are accepted to NIMS for training under a tie-up with NIMS

Environment

MANA is located in the center of Tsukuba Science City, where many national research and educational institutions are concentrated. We are adjacent to JAXA (Japan Aerospace Exploration Agency) and AIST (National Institute of Advanced Industrial Science and Technology).

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 so that they can focus on their own research.

Namiki Foundry

We offers the most advanced core technology facilities in NIMS. We have English-speaking engineering staff.

Melting Pot Café

There are spaces throughout the building where multinational researchers from a variety of backgrounds can meet. This is where the next seeds of innovation are born.

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 annual MANA International Symposium, young researchers and world-leading scientists engage in lively discussions.

Outreach Activities at MANA

The MANA Outreach team disseminates information regarding MANA's latest research activity and outcomes to a wide audience both domestically and internationally. Our PR resources are based on the regular publication of brochures and magazines, the worldwide diffusion of owned media through news wire services, activity reports using social networking services, and onsite/online event planning. We endeavor to promote nanoarchitectonics-based materials science to a general audience in order that its impact on our daily lives will be recognized by the public.

BROCHURE

CONVERGENCE

E-BULLETIN


SNS

Organization


Takashi Taniguchi
Director


Tomonobu Nakayama
Deputy Director /
Administrative Director


Yutaka Wakayama
Deputy Director

Administrative Office

General Affairs Team

Outreach Team

Nano-Materials Field

Nano-System Field

Nano-Theory Field

Cross-Field Researchers

Electro Active Materials Team,
Independent Scientists,
ICYS-WPI-MANA Research Fellow,
Satellite PIs

Advisors


Masakazu Aono
Former MANA Director,
MANA Executive Advisor


Jean-Marie Lehn
Professir, University
of Strasbourg,
Nobel Laureate
in Chemistry (1987)


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


Teruo Kishi
Former NIMS President


Hidetoshi 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 MANA scientists.

To Join MANA

Ways to Perform Research at MANA

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

International Center for Young Scientists (ICYS)

NIMS has an ICYS program to support and nurture young researchers who produce results that can become innovations. It provides an independent budget and a free research environment for outstanding young postdoctoral researchers from around the world.

International Center for Materials Nanoarchitectonics (WPI-MANA)

Nano Revolution for the Future

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World Premier International Research Center Initiative

National Institute for Materials Science

(January 2022)