

Access

Access to Kumamoto



【To Kumamoto Airport by Air】

From Tokyo (Haneda) - 100 min
From Osaka (Itami) - 65 min

【From the airport】

To the Bus Terminal by limousine bus - 50 min
To the university by taxi - 40 min
From the Bus Terminal to "Kumamoto Daigaku Mae"
by Sanko bus line

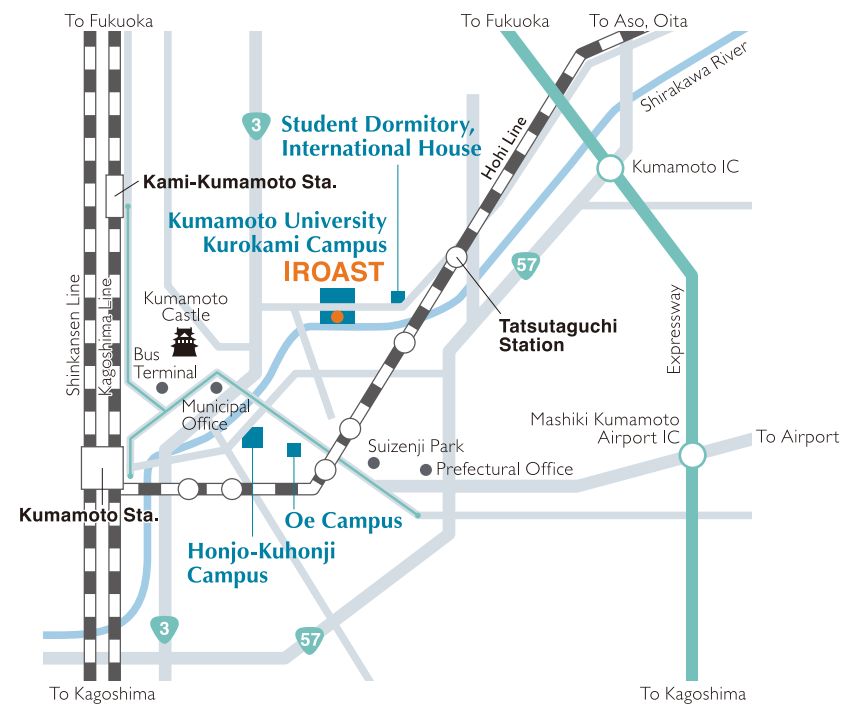
【From the station】

To the university by taxi - 20 min
To "Kumamoto Daigaku Mae" by Sanko bus line

【To JR Kumamoto Station by Bullet Train】

From Tokyo - 6 hrs
From Osaka - 3 hrs
From Fukuoka (Hakata) - 33 min

Area Map



Contact

International Research Organization for
Advanced Science and Technology (IROAST)
2-39-1 Kurokami, Chuo-ku, Kumamoto 860-8555, Japan
Phone: +81-96-342-3979
E-mail: szk-kiko@jimu.kumamoto-u.ac.jp



Message from Director



The International Research Organization for Advanced Science and Technology (IROAST), which opened in April of 2016, is one of the Centers of Excellence at Kumamoto University. The aims of IROAST are the further promotion of international collaboration to establish international research networks in the following four advanced areas of science and technology: Nano Material Science, Green Energy, Environmental Science and Advanced Green Bio, in parallel with the development of excellent young researchers, promotion of ongoing cutting-edge research projects, and initiation of innovative interdisciplinary research projects. To achieve these goals, we will promote international partnerships with overseas universities and institutions. Our ultimate goal is to act fully and globally as a hub of world-class, cutting-edge research networks through international intelligence circulation. IROAST is now in its fifth year, in 2020. As its director, it is my great pleasure to see what we have achieved in bringing significant innovation to Kumamoto University.

Dr. Takashi Hiyama

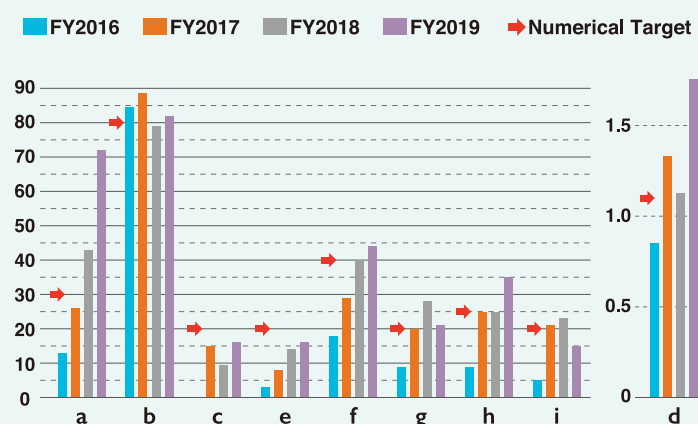
Professor Emeritus of Kumamoto University
Distinguished Professor
Priority Organization for Innovation and Excellence
Kumamoto University
E-mail: hiyama@cs.kumamoto-u.ac.jp
URL: <http://www.cs.kumamoto-u.ac.jp/hiyama/>

Overview

Creation of Strong International Joint Research Networks: We have set up a considerable number of research units targeting the configuration of international joint research networks to promote interdisciplinary and cutting-edge research collaboration. Currently, we have twenty-two units with world-class researchers including IROAST tenure-track professors, distinguished professors, visiting professors, their host professors, and additional international collaborators.

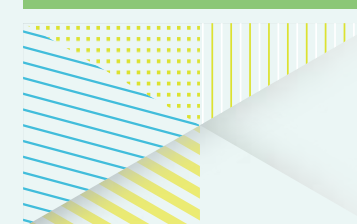
Development of Excellent Young Researchers: To import excellent minds, we have employed tenure-track and postdoc researchers from around the world. Successful tenure-track candidates will be promoted to tenured posts at our associated institutes, such as the Graduate School of Science and Technology and the Faculty of Advanced Science and Technology, after qualification there. In addition, we have sent excellent young faculty members to overseas universities and institutions to gain international recognition for them and to expand international joint research networks. Based on these research-supporting activities, we have established internationally collaborated research units consisting of excellent young researchers to develop and to initiate innovative and interdisciplinary research networks.

Current Status of Research Activities: We have established a certain number of indices, both to indicate and to evaluate our research activities and their results. The numerical targets of those indices are indicated in parentheses.



- a. Number of papers: 72 (30)
- b. Rate of international joint papers: 81.9% (80)
- c. Rate of top 10% papers: 16.7% (20)
- d. Category Normalized Citation Impact (CNCI): 1.176 (1.1)
- e. Number of concluded MOUs et al.: 16 (20)
- f. Number of IROAST visiting professors et al.: 44 (40)
- g. Number of IROAST international symposia et al.: 21 (20)
- h. Number of invited foreign researchers, incl. IROAST visiting professors: 35 (25)
- i. Number of trips overseas by young faculty members for international joint research: 15 (20)

Organization



The figure below illustrates the basic configuration of IROAST and its four major research areas:

Nano Material Science covers a wide area including the development of organic functional materials such as graphene oxide nano-sheets, catalysts and metal materials. It also includes the development of innovative materials under extreme conditions.

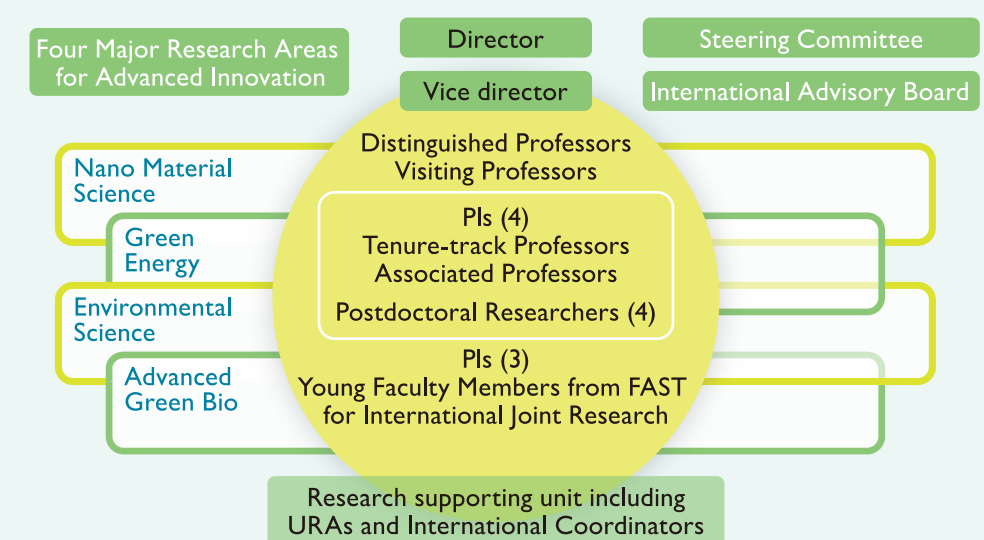
Green Energy includes the development and utilization of renewable resources such as geo-thermal, water, and bio-mass.

Environmental Science covers a wide area including the protection and evaluation of hydrospheric and atmospheric environments, analysis of climate change, and the protection of underground water and shallow sea areas.

Advanced Green Bio covers a wide area for interdisciplinary life sciences relating to chemical biology, molecular biology, medicine, pharmacy, agriculture (such as the development of drug delivery systems), micro-CT applications, informatics applications, and so on.

Other research area that have potentials as new IROAST's major research areas in its next phase, such as machine learning, AI and big data.

Organization of IROAST



Distinguished Professors

We employ a certain number of excellent professors from overseas universities and institutions.

Tenure-track Professors and Associate Professors

They perform research as principal investigators.

Postdoctoral Researchers

They assist research performed by the principal investigators.

Steering Committee Members

Director Takashi HIYAMA, Distinguished Professor of Priority Organization for Innovation and Excellence

Vice-Director Kazuki TAKASHIMA, Professor of Faculty of Advanced Science and Technology, Graduate School of Science and Technology

Prof. Tokio TANI, Dean of Faculty of Advanced Science and Technology
Vice-Dean of Graduate School of Science and Technology
Dean of Faculty of Science

Prof. Sadahiro TSUREKAWA, Vice Dean of Faculty of Advanced Science and Technology

Dean of Graduate School of Science and Technology
Dean of Faculty of Engineering

Dr. Yasumichi MATSUMOTO, Director of Institute of Industrial Nanomaterials and Vice-President of Kumamoto University

Prof. Shintaro IDA, Vice-Director of Institute of Industrial Nanomaterials

Prof. Yoshihito KAWAMURA, Director of Magnesium Research Center

Prof. Ryuji KAKIMOTO, Director of Center for Water Cycle, Marine Environment and Disaster Management

International Advisory Board Members

Prof. Peter WESTHOFF
Vice-President for Research and Technology Transfer, Dusseldorf University, Germany

Dr. Anne GELLERT
Director, International Office, Dusseldorf University, Germany

Prof. Kwang Yun LEE
Chair of Electrical and Computer Engineering, Baylor University, USA
Fellow of IEEE, Chair of Technical Committee on Power and Energy Systems of IFAC

Staff



Director

Dr. Takashi HIYAMA

Distinguished Professor
Priority Organization for Innovation & Excellence



Vice Director

Kazuki TAKASHIMA

Vice Director
Professor of Faculty of Advanced Science and Technology
Graduate School of Science and Technology



Tenure-track Professor

Dr. Mitsuhiro AIDA

International Research Organization for Advanced Science and Technology
Plant stem cells, morphogenesis, transcriptional regulation



Tenure-track Associate Professors

Dr. Ruda LEE

International Research Organization for Advanced Science and Technology
Molecular Engineering, Molecular Imaging, Nanomedicine, Drug Delivery



Dr. Atsushi SAINOKI

International Research Organization for Advanced Science and Technology
Sustainable energy development; underground hard rock mining; rock slope stability; induced seismicity



Dr. Takumi HIGAKI

International Research Organization for Advanced Science and Technology
Quantitative bioimaging, Cell morphogenesis, Cytoskeleton and organelles



Tenure-track Assistant Professor

Dr. Takashi ISHIDA

International Research Organization for Advanced Science and Technology
Plant stem cell and development



Distinguished Professors

Dr. László PUSZTAI

Wigner Research Centre for Physics,
Hungarian Academy of Sciences, Hungary
Structure of liquid and amorphous materials



Dr. Yufeng ZHENG

Department of Materials Science and Engineering, College of Engineering, Peking University, China
Metallic biomaterials



Dr. Konstantinos KONTIS

Sir Henry Mechan Chair of Engineering,
School of Engineering,
University of Glasgow, UK
Aerospace engineering



Postdoctoral Researchers

**Dr. Adam Karl SCHWARTZKOPFF
(Dr. Sainoki's Lab)**

International Research Organization for Advanced Science and Technology
Rock fracture mechanics, three-dimensional crack propagation prediction, analytical and numerical calculations of stress intensity factors, hydraulic fracturing, and rock failure analysis



**Dr. Akiko NAKAMASU
(Dr. Higaki's Lab)**

International Research Organization for Advanced Science and Technology
Pattern formation, plant morphogenesis, and theoretical and mathematical biology



**Dr. Mizuki YAMADA
(Dr. Aida's Lab)**

International Research Organization for Advanced Science and Technology
Plant physiology



Young Faculty Members for International Joint Research

Dr. Takahiro HOSONO

Associate Professor
Faculty of Advanced Science and Technology
Environment dynamics analysis, Environmental assessment, Hydro-environmental science, Environmental isotope science, Natural disasters



Dr. Kei ISHIDA

Associate Professor
Center for Water Cycle, Marine Environment and Disaster Management



Dr. Makoto KUMON

Professor
Faculty of Advanced Science and Technology
Robotics, UAV, real time embedded systems, control applications, nonlinear systems



Dr. Mizue MUNEKATA

Associate Professor
Faculty of Advanced Science and Technology
Fluid engineering



Dr. Masayuki TANABE

Assistant Professor
Faculty of Advanced Science and Technology
Ultrasound Imaging, Signal Processing



Dr. Yuta NAKASHIMA

Associate Professor
Faculty of Advanced Science and Technology
Biomedical engineering
Biomedical devices



Visiting Professors / Visiting Associate



1 Dr. U. Rajendra ACHARYA

Ngee Ann Polytechnic, Singapore

Signal and Image processing and Artificial Intelligence



2 Dr. José E. ANDRADE

California Institute of Technology (Caltech), USA

Developing a fundamental understanding of the multiscale and multiphysical behaviors of porous materials—everything from soils, rocks, and concrete to bone. Behavior of granular materials like sand, snow, and even grain stored in silos



3 Dr. Josep-Lluís BARONA-VILAR

Institute of History of Medicine and Science López Piñero (IHMC),

University of Valencia, Spain

History of science, history of medicine



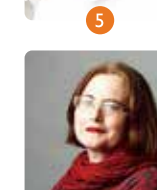
4 Dr. Marc DE BOISSIEU

SIMaP, CNRS, Université Grenoble Alpes, France

Quasicrystals, structure, phonon and phason,

Coherent x-ray diffraction imaging,

Ge based clathrates

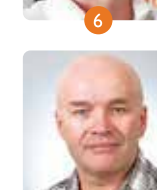


5 Dr. Pouyan BOUKANY

Delft University of Technology, Netherlands

Living Soft Matter, complex fluids,

biomicrofluidics and biomechanics



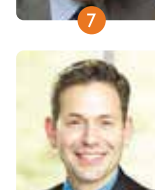
6 Dr. Olivier BOUTIN

M2P2 Laboratory, Aix Marseille University, France

Chemical engineering, high pressure and high temperature process for

waste treatment and biomass valorisation,

Wet air oxidation.



7 Dr. Paul BOWEN

School of Metallurgy and Materials,

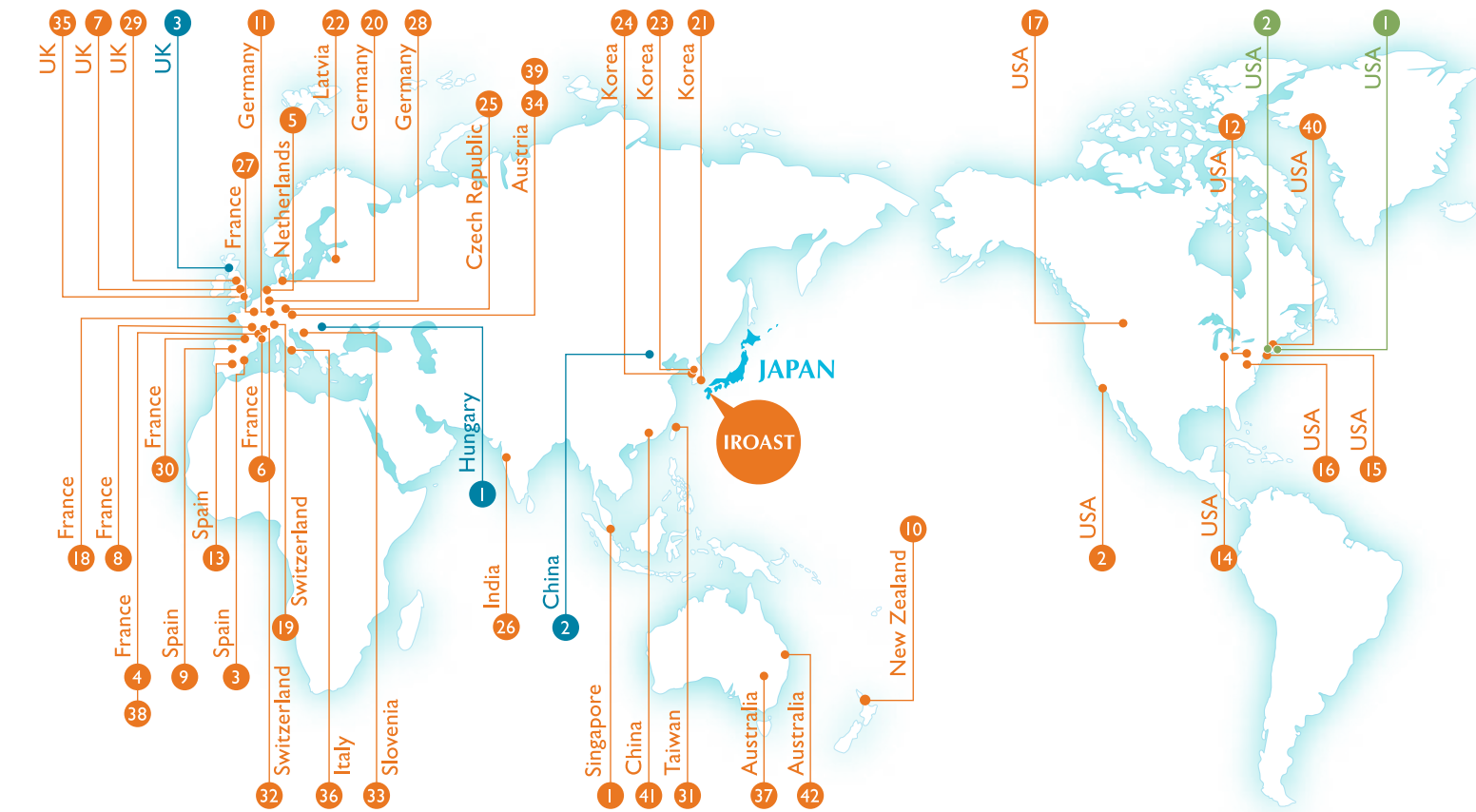
The University of Birmingham, UK

Characterisation, development, fracture and fatigue of alloys and

composite materials (MMCs and CMCs), etc.



Professors



- 8 Dr. Pierre BREUL**
University of Clermont Auvergne, France
Soils and granular materials mechanics
- 9 Dr. Maria Jose COCERO**
Chemical Engineering & Environmental Technology
Universidad de Valladolid, Spain
Development of biorefinery processes and products.
Healthy and high added value products from renewable raw materials.
Intensification of processes through the implementation of new technologies for revaluation of raw materials and waste.
Energy and fuels for the sustainable development.
- 10 Dr. Patrice DELMAS**
Department of Computer Science,
The University of Auckland, New Zealand
Image processing techniques applied to soil science,
2D/3D medical imaging, theoretical and
Applied Computer Vision at large
- 11 Dr. Martin DIENWIEBEL**
Applied Nanotribology
Karlsruhe Institute of Technology(KIT), Germany
Tribology, surface science, nanotribology
- 12 Dr. Derek ELSWORTH**
Department of Energy and Mineral Engineering and of Geosciences
The Pennsylvania State University, USA
Computational mechanics, rock mechanics, and in the mechanical and transport characteristics of fractured rocks
- 13 Dr. Carolina ESCOBAR**
Department of Environmental Sciences
School of Environmental Sciences and Biochemistry
University of Castilla La Mancha, Spain
Phytopathology (Molecular knowledge of the Plant-nematode interaction and nematodes control)

- 14 Dr. Amir A. FARAJIAN**
Department of Mechanical and Materials Engineering
Wright State University, USA
Nanoscience and nanotechnology with emphasis on computational modeling, sensors, materials for renewable energy, inelastic response, nano- and molecular-electronics, nanoelectromechanical systems, electronic and thermal quantum transports, bio-inspired nanomaterials.
- 15 Dr. Etsuko FUJITA**
Chemistry Division,
Brookhaven National Laboratory, USA
Photochemistry of transition-metal complexes, organometallic compounds, and band-gap-narrowed semiconductors; photochemical and electrochemical CO₂ reduction and water splitting; small molecule activation
- 16 Dr. Tomonari FURUKAWA**
Department of Mechanical and Aerospace Engineering
University of Virginia, USA
Robotics, autonomous systems, computational/experimental mechanics
- 17 Dr. Hamid GHANDEHARI**
Director of Utah Center for Nanomedicine,
Professor of Department of Pharmaceutics and Pharmaceutical Chemistry and Bioengineering,University of Utah, USA
Engineering biomaterials for delivery of bioactive agents, toxicology of engineered nanoconstructs
- 18 Dr. Olivier HAMANT**
INRA, RDP, ENS Lyon, France
Plant development, mechanical signals

- 19 Dr. Christian HARDTKE**
Department of Plant Molecular Biology,
University of Lausanne, Switzerland
Plant development, vascular differentiation, plant hormones, peptide signalling
- 20 Dr. Jens HARTMANN**
Institute for Geology, Universität Hamburg, Germany
Aquatic geochemistry, global biogeochemical cycles
- 21 Dr. Yang KIM**
Kosin University, Korea
Supramolecular chemistry, chemosensor
- 22 Dr. Alexei KUZMIN**
Head of Laboratory
EXAFS Spectroscopy Laboratory
Institute of Solid State Physics, University of Latvia, Riga, Latvia
X-ray absorption spectroscopy, computer simulations, oxide materials
- 23 Dr. Ick Chan KWON**
Department of Cancer Biology, Dana Farber Cancer Institute, Harvard Medical School, USA
Principal Research Scientist
Biomedical Research Institute, Korea Institute of Science and Technology (KIST), Korea
Drug delivery system, molecular imaging, theragnosis, nanomedicine
- 24 Dr. Youn-Woo LEE**
School of Chemical and Biological Engineering,
Seoul National University, Korea
Supercritical Fluid Technology
- 25 Dr. Pavel LEJČEK**
Institute of Physics, Academy of Sciences of the Czech Republic, Czech Republic
University of Chemistry and Technology, Prague, Czech Republic Metallurgy, materials science



- 26 Dr. Viren Ivor MENEZES**
Department of Aerospace Engineering, Indian Institute of Technology Bombay, India
Applications of shock waves and hypersonic aerothermodynamics
- 27 Dr. Matthieu MICOULAUT**
Sorbonne University, France
Glasses, liquids.
Glass transition, structure of disordered materials
- 28 Dr. Dmitri Aleks MOLODOV**
Institute of Physical Metallurgy and Metal Physics, RWTH Aachen University, Germany
Characterization and control of micro-structure evolution in polycrystalline solids; Dynamic properties of interfaces in metals and alloys;
Crystal plasticity
- 29 Dr. Rahul Raveendran NAIR**
Materials Physics
National Graphene Institute and School of Chemical Engineering and Analytical Science
The University of Manchester, UK
Materials physics, 2D materials, nanoscience and nanotechnology, 2D materials based membranes and coating, nanofluidics
- 30 Dr. Reiko ODA**
CBMN UMR5248, CNRS,
University of Bordeaux, France
Colloid/surfactant chemistry, physical chemistry
- 31 Dr. Shie-Ming PENG**
National Taiwan University, Taiwan
Inorganic Chemistry; Crystallography; Nano Science.
Structure and Bonding of Transition Metal Complexes; Metal-Metal Bonds; Molecular Metal Wires; Molecular Electronics.

- 32 Dr. Ramesh Shanmughom PILLAI**
Department of Molecular Biology, University of Geneva, Switzerland
RNA biology and epigenetics
- 33 Dr. Zoran REN**
Faculty of Mechanical Engineering,
University of Maribor; Slovenia
Advanced computation solid mechanics, cellular materials, impact and dynamics
- 34 Dr. Christian RENTENBERGER**
Faculty of Physics
University of Vienna, Austria
Structure and properties of nanocrystalline and amorphous materials, electron microscopy methods
- 35 Dr. Stelios RIGOPOULOS**
Department of Mechanical Engineering
Imperial College London, UK
Population balance modelling, aerosol science, fluid mechanics, reacting flows, LES/DNS, PDF methods, combustion, crystallisation, chemical kinetics, machine learning.
- 36 Dr. Martino DI SERIO**
University of Naples Federico II, Italy
Catalysis, Green Chemistry
- 37 Dr. Shirley SHEN**
Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia
Nanomaterials, Surfacel interphase designs and embedded functions
- 38 Dr. Gioacchino (Cino) VIGGIANI**
Solid Mechanics and Civil Engineering
Université Grenoble Alpes, France
Geomechanics

- 39 Dr. Thomas WAITZ**
Faculty of Physics,University of Vienna, Austria
Nanostructured materials, shape memory alloys, phase transformations, transmission electron microscopy
- 40 Dr. Andrew .WHITTLE**
Civil & Environmental Engineering,
Massachusetts Institute of Technology (MIT), USA
Geotechnical, urban infrastructure
- 41 Dr. Zhenghe XU**
College of Engineering, Southern University of Science and Technology, China
Department of Chemical and Materials Engineering, University of Alberta, Canada
Engineering of nano particles and composites for bio, energy and environmental applications, Interfacial phenomena in minerals and materials processing, Surface and interface characterization, etc.
- 42 Dr. Firuz ZARE**
Power and Energy Group,
The University of Queensland, Australia
Power electronics and energy conversion

Visiting Associate Professors

- 1 Dr. Daniel P. ZITTERBART**
Woods Hole Oceanographic Institution, USA
Marine Animal Remote Sensing
- 2 Dr. Tomoyasu MANI**
Department of Chemistry, University of Connecticut, USA
Electron and energy transfer; spin chemistry