

NITech Topics

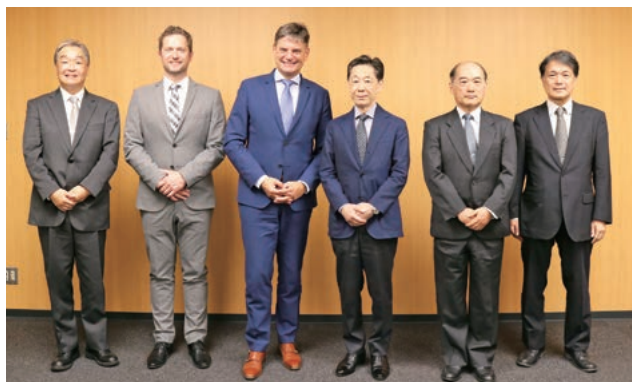


Nagoya Institute of Technology

Gokiso-cho, Showa-ku, Nagoya, Aichi, 466-8555 Japan

<https://www.nitech.ac.jp/eng/>

2023



Friedrich-Alexander-Universität Erlangen-Nürnberg



Universiti Teknologi Malaysia

TOPIC
01

Many visitors from overseas universities visited NITech

Travel restrictions due to COVID-19 have subsided, and in 2023 many visitors from overseas universities visited NITech.

○May 2023

On May 2023, Vice-Chancellor Prof. Ir. Ts. Dr. RUZAIRI BIN ABDUL RAHIM and 6 members of Universiti Tun Hussein Onn Malaysia visited our university.

Following a departmental agreement in 2012, our university and UTHM concluded an inter-university academic exchange agreement in 2017, and have been promoting joint research as well as faculty and student exchanges.

During this visit, after discussing future exchanges, they toured the laboratory and research center.

○July 2023

On July 2023, 6 people including the Rector Prof. Dr. H. Mahmud, M. Si., CSEE, MCE. of Universitas Islam Negeri UIN Sunan Gunung Djati Bandung, Indonesia (UIN) visited our university.

Since 2019, 6 students from UIN have been enrolled in the master's program of NITech as the MEXT scholarship students. During this visit, after discussing future exchanges, four graduates talked about their experiences studying at NITech.

○August 2023

On August 2023, Vice-Chancellor Prof. Datuk Ts. Dr. Ahmad Fauzi Ismail and 5 members of Universiti Teknologi Malaysia (UTM) visited NITech.

In 2006, NITech and UTM concluded an academic exchange agreement, and have been promoting joint research as well as faculty and student exchanges, through various exchange programs of Japan Society for the Promotion of Science (JSPS), "Sakura Science Exchange Program" of Japan Science and Technology Agency (JST), and participation in Malaysia-Japan International Institute of Technology (MJIIIT) consortium, etc.

In FY2022, the project applied by Associate Professor YOSHIDA Naoko of NITech, as the principal investigator in Japan, was selected on Science and Technology Research Partnership for Sustainable Development (SATREPS) by JST and JICA (Japan International Cooperation Agency), with Vice-Chancellor Prof. Datuk Ts. Dr. Ahmad Fauzi Ismail of UTM as the principal investigator in Malaysia. (see article Topic4)

It was a courtesy visit that also served as one-week research meetings as the collaborative research officially began in FY2023. After the introduction of each university, there was an exchange of views about international collaborations, especially through SATREPS.

○September 2023

In conjunction with “Sakura Science Exchange Program” of Japan Science and Technology Agency (JST) held at our university (see article Topic5), the Dean of the faculty Prof. Mohd Fadzli Bin Abdollah of Universiti Teknikal Malaysia Melaka visited NITech.

We are promoting joint research as well as faculty and student exchanges, and during this visit, after discussing ways to collaborate between the two universities, they visited research facilities and laboratories.

○October 2023

On October 2023, Prof. Dr. Joachim Hornegger, President and Prof. Dr. Kyle G. Webber, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany, which is our partner university, visited NITech. This is the first FAU president’s visit to NITech, and he had a lively exchange of opinions, toured laboratories, met with students, and visited the Japanese company.

In 2009, starting from department level partnerships in Ceramics field between FAU and NITech, we concluded university level partnerships in 2011. In addition, in 2013 NITech established the Liaison Office on the FAU campus. We have built a very close relationship in both education

and research through mutual exchanges of more than 400 faculty, administrative staff and students.

In recent years, in 2019, the project “Energy Conversion Systems: From Materials to Devices” with FAU was selected as the Japanese-German Graduate Externship (JGGE) by the Japan Society for the Promotion of Science (JSPS), and NITech has been promoting faculty and student exchanges, and international joint research on university-level. Based on these achievements, we will establish “Nagoya Institute of Technology and Friedrich-Alexander-Universität Erlangen-Nürnberg Joint Degree Doctoral Program in Energy Conversion Systems”, Joint Degree (JD) Program, jointly with FAU in April 2024. This is the first JD program between Japan and Germany in the doctoral course in engineering field. Both universities will work together to foster innovation leaders who will transform society from an international perspective, with the aim of creating a carbon-neutral society.

NITech is aiming for further exchanges with overseas universities. We will continue to deepen our collaboration and strive to foster global human resources, exchanges between faculty and students, and development of international joint research.



Universiti Tun Hussein Onn Malaysia

TOPIC
02

Reorganization of graduate school master’s program and courses

In April 2020, NITech’s Graduate School Master’s Course abolished the existing five majors and created one Department of Engineering, with an educational program, which allowed us to respond flexibly and quickly to changes in social needs and technology.

From the perspective of further enriching education and research, existing programs and courses will be reorganized starting in FY2024.

Specifically, the current 7 programs + 1 course will

be reorganized into 19 new programs, including multidisciplinary fields such as “Future Communications”, “Carbon Neutrality Science and Engineering” and “Biomedical Science and Engineering”. In our new educational program, we will work on practical education that better meets the needs of society and students, through project-based education in collaboration with industry and overseas universities.

Until FY2023			From FY2024	
Graduate School of Engineering, Department of Engineering (Master's degree)			Graduate School of Engineering, Department of Engineering (Master's degree)	
Life Science and Applied Chemistry Program	Life and Materials Chemistry	→	Program of Life and Materials Chemistry	
	Soft Materials		Program of Soft Materials	
Physical Science and Engineering Program	Advanced Ceramics	→	Program of Advanced Ceramics	
	Material Function and Design		Program of Material Function and Design	
Electrical and Mechanical Engineering Program	Applied Physics	→	Program of Applied Physics	
	Electrical and Electronic Engineering		Program of Electrical and Electronic Engineering	
Computer Science Program	Mechanical Engineering	→	Program of Mechanical Engineering	
	Networks		Program of Networks	
Architecture, Civil Engineering and Industrial Management Engineering Program	Computational Intelligence	→	Program of Computational Intelligence	
	Multimedia and Human Computer Interaction		Program of Multimedia and Human Computer Interaction	
Creative Engineering Program	Mathematics and Mathematical Science	→	Program of Mathematics and Mathematical Science	
	Architecture and Design		Program of Architecture and Design	
Innovation Program	Civil and Environmental Systems Management and Engineering	→	Program of Civil and Environmental Systems Management and Engineering	
			Program of Future Communications Engineering	
			Program of Carbon Neutrality Science and Engineering	
			Program of Biomedical Science and Engineering	
			Creative Engineering Program	
			Innovation Program	

TOPIC
03

Nagoya University Graduate School of Medicine and Nagoya Institute of Technology Sign a Basic Agreement on Collaboration

Nagoya Institute of Technology and Nagoya University Graduate School of Medicine signed a basic agreement on April 3, 2023, in order to utilize the research capabilities and human resources of both parties and strengthen collaboration and cooperation between them.

On April 3, a basic agreement signing ceremony was held, with Nagoya Institute of Technology President KINOSHITA Takatoshi and Nagoya University Graduate School of Medicine Dean KIMURA Hiroshi signing the basic agreement.

While both institutes have conducted joint research involving individual researchers, they believe that broader exchanges and cooperation beyond specialized fields are important for the development of safer and more effective new medical technology. The purpose of this agreement is to facilitate joint research, exchanges between researchers, students and related staff, and mutual use of research facilities and resources for promotion of practical science and cocreation, eventually enabling a leap forward and the development of human resources in leading-edge research and development areas through medicine-engineering collaboration.

On October 10, a joint symposium between Nagoya Institute of Technology and Nagoya University Graduate School of Medicine (co-sponsored by the Academia-

Industry collaboration platform for cultivating Medical AI leaders (AI-MAILs) and the Medical Engineering Collaboration Center) was held at NITech Hall.

After greetings from Tokai National Higher Education and Research System Chancellor MATSUO Seiichi and Nagoya Institute of Technology President KINOSHITA Takatoshi, there was an introduction to AI-MAILs initiatives, presentations on joint research results, a invited lecture, and introductions to elemental technologies for medical-engineering cooperation.

Nagoya University Graduate School of Medicine and Nagoya Institute of Technology will continue to further strengthen their relationship.



Press conference on April



Assistant Prof. MUTO Masakazu at joint symposium



Associate Prof. OTSUKA Takanobu at joint symposium

TOPIC
04

Joint research under JST and JICA's SATREPS program has officially begun

Science and Technology Research Partnership for Sustainable Development (SATREPS) by JST (Japan Science and Technology Agency) and JICA (Japan International Cooperation Agency) Joint research “Development of Palm Oil Mill Effluent (POME) Treatment System for Sustainable Energy Production and Resource Recovery based on Material Innovation” has officially begun.

This project was selected in FY2022 with Universiti Teknologi Malaysia (UTM)’s Vice-Chancellor Prof. Datuk Ts. Dr. Ahmad Fauzi Ismail as the principal investigator on the Malaysian side and Associate Professor YOSHIDA Naoko of our university as the principal investigator on the Japanese side. And joint research was officially begun in FY2023.

This project aims to establish “Energy Production and Resource recycling POME Treatment System that recycles

POME waste biomass as energy, fertilizer, and reclaimed water.” It also aims to develop human resources in order to continue material development research in Malaysia and Japan for a long time to come.

This year, we are also accepting JICA long-term researchers from Malaysia to our university, and we look forward to strengthening our relationship in the future.

[Reference]

[JST/JICA, Science and Technology Research Partnership for Sustainable Development \(SATREPS\)](#)

[Overview of the Research Project by associate professor YOSHIDA Naoko: “Development of Palm Oil Mill Effluent \(POME\) Treatment System for Sustainable Energy Production and Resource Recovery based on Material Innovation”](#)

TOPIC
05

Sakura Science Exchange Program was held

With the support of Japan Science and Technology Agency (JST), for 14 days from September 17, to September 30, 2023, participants from Universiti Teknikal Malaysia Melaka were invited to NITech on “Sakura Science Exchange Program”. The participants were a faculty member and graduate students (9 students: Master’s course, 3 students: Doctor’s course). Assistant Professor HONDA Mitsuhiro conducted joint research and exchanges as the main person in charge.

This was the first time in 4 years that invited participants have actually come to Japan and conducted the program. On the first day, the participants received a brief explanation about the laboratory, experimental equipment, and research topics at NITech, and were given a tour around NITech. From the second day onwards, after receiving a lecture from Professor TANEMURA Masaki and a briefing from Assistant Prof. HONDA, they conducted joint experiments. The lecture on the basics of graphene

synthesis technology had many questions from them, and was very meaningful.

Participants conducted experiments with the support of graduate students from NITech, and on the final day they gave a presentation based on the data obtained from the experiments. A meaningful discussion that will lead to future joint research was held, deepening concrete discussions on collaboration through joint research. We were able to confirm the establishment of the “Resource-Applied Nanotechnology Consortium” and a cooperative relationship for future joint research.

After the discussion, a social gathering was held with the participation of students and faculty from NITech. In addition to research, we shared information about each other’s cultures and histories, and deepened our friendship through cross-cultural exchange.

During the period, participants also toured the Nagoya City Science Museum and the SCMAGLEV and Railway Park. They broadened their knowledge by learning about Japan’s railway network and system, which boasts world-class safety.



Lecture and briefing by Assistant Prof. HONDA Mitsuhiko

Although it was a very short period of time, through discussions and joint experiments, we were able to reach a consensus on the theme of synthesizing graphene using agricultural waste (coconut husk) as a carbon source and applying it to tribology. We received comments from participants that they were extremely satisfied, and we look forward to further exchanges between the two universities in the future.

[Reference] JST Sakura Science Exchange Program
<https://ssp.jst.go.jp/en/index.html>



Participants and the Dean of the faculty Prof. Mohd Fadzli Bin Abdullah of Universiti Teknikal Malaysia Melaka



Tour of SCMAGLEV and Railway Park

TOPIC
06

NITech Research Navi has been released

We have launched a portal-like website that aggregates research-related information at Nagoya Institute of Technology.

We would like companies, the media, the local community, and the general public to widely learn about NITech’s research initiatives and researcher. On this site, you can find and search research information from NITech as a whole, transcending the boundaries of each department. In addition to news about research activities, “Research News” also introduces information on faculty’s award recipients. You can watch videos of NITech’s research in “Research Videos.” “Researcher Interviews” features

interviews with faculty members about what led them to pursue a career in research and the content of their research.

We would like everyone overseas to learn about NITech’s research. The English version is also available at the same time, so please take a look.

NITech Research Navi

TOPIC
07

Professor KITAGAWA Keisuke donated “Instant House” to areas affected by the Turkey-Syria Earthquake

Professor KITAGAWA Keisuke (Field of Architecture, Civil Engineering and Industrial Management Engineering) donated “Instant House” to the victims of the Turkey-Syria Earthquake, that occurred in February 2023.

“Instant House” is a temporary housing that looks like a tent developed by Prof. KITAGAWA. It has excellent insulation properties and can accommodate 3 to 4 adults. Manufacture and sales are handled by LIFULL ArchiTech Co., Ltd. (President and CEO: Prof. KITAGAWA), a venture company originating from Nagoya Institute of Technology. Prof. KITAGAWA began developing this after visiting evacuation centers in areas affected by the 2011 Great East Japan Earthquake. The reason is that he was shocked by the words from boys in the 3rd and 4th grade. They couldn’t understand why it takes half a year to build temporary housing. They said, “If you are a professor, please build it by next week!” to Prof. KITAGAWA. Development began based on joint industry-academia research and took 9 years.

Prof. KITAGAWA went to the disaster-stricken area in March 2023, held meetings with local governors and mayors, and with support from ministries, NGOs, companies, and NI Tech, he built 3 Instant Houses of different sizes in the Antakya city in southern Turkey in April.

The Instant House will be completed in about 4 hours. Prof. KITAGAWA received comments from those who

supported the work at the site and the disaster victims who toured the interior, such as “I can’t believe it was done so quickly” and “Even though it’s over 30 degrees outside, it’s very cool inside.”

Prof. KITAGAWA is also focusing on research into reducing costs by using materials that can easily be sourced locally in the disaster hit areas. What he is currently focusing on is starch paste made from potatoes. Making insulation using starch pastes made from potatoes, corn, or rice, can significantly reduce costs.

He will continue to explore new building styles, including improvements to Instant Houses.

We would like to express our heartfelt sympathies to everyone affected by the devastating earthquake that occurred near the Syrian border in southern Turkey on February 6, 2023, and pray for the earliest possible recovery and reconstruction.



Prof. KITAGAWA Keisuke with children in Turkey



Instant House donated to Ankitaya city



Prof. KITAGAWA Keisuke with Instant House and people of Turkey