



Institute of Global Innovation Research

Challenge to the global Problems of “food” and “Energy”



AY2019



Tokyo University of Agriculture and Technology



Message



President
Prof. Hiroyuki Ohno

TUAT is a university with distinctive emphasis/focus on education and research in the respective and interdisciplinary fields of agriculture and engineering, which form the foundation of industry nowadays. Under our third medium-term objectives/plan, “to achieve competitive research capabilities on a global level”, we aim to play a major role to lead Japan to the world.

We believe our distinctive strengths will enable us to create unique and new forms of knowledge, as well as driving globalization of our cutting edge research in the both fields.



GIR Dean
Prof. Hidehiro Kamiya

In 2016, to strengthen our role “to achieve competitive research capabilities on a global level” , TUAT reorganized the Global Innovation Research Organization into the Institute of Global Innovation Research (GIR). We facilitate international collaborative research in the three priority area of “Food” , “Energy” and “Life Science” and endeavor to enhance the further globalization of younger researchers.

We will make further contribution to fortify the university's capability and to build the foundation for the university system reform.

Approaches

Tokyo University of Agriculture and Technology (TUAT) was selected by the Japanese government as one of the 12 national universities rapidly promoting global research in 2014. In exploiting our advantages in the agriculture and engineering fields, and as an initiative to enhance our research capabilities, we established the Global Innovation Research Organization in June 2014 to further our goals as a research university. In 2016, it was reorganized as the Institute of Global Innovation Research (GIR), a new research institution at the graduate school. In 2018, for further enhancement, the GIR has formed a research group in each three key areas and Strategic Research Initiative for Interdisciplinary Fields consisting of researchers who has 3-year experience in strategic research teams.

At the GIR, we prioritize research in three key areas: "food," "energy," and "life science" which constitute an interdisciplinary area between agriculture and engineering fields. We aim to boost the number of international joint research efforts and internationally co-authored papers, creating advanced innovative results for themes with a high social demand in the key areas.

Priority Field 1 Food

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|--|---|--------------------------|
| Biomass Production | Environmental Stress Resistance of Plant | Plastic Pollution |
| Conservation of Regional Biodiversity | Green Infrastructure | |



Production of Food
Environmental Science

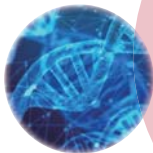
Tokyo University of Agriculture and Technology
Institute of Global Innovation Research

Field Group & Strategic research teams in the Three Fields
Strategic Research Initiative for Interdisciplinary Field
- Employment of World's leading Researchers as core Professors -

"Carrier challenge" (Tenure Track system) etc



Advancement of international collaboration
Development of young researchers



Protein Science
Life and Medical Science



Energy Control
Energy Efficiency

- Disease**
- Drug Discovery**
- Health**
- Biomimetics**
- Cell Biology**

- LED**
- Green Manufacturing**
- Li-Ion Battery**
- Resource /Energy Discovery**
- Environmental-friendly Process of the Production of Useful Compounds**

Priority Field 3 Life Science

Priority Field 2 Energy

Food

Food is one of the critical challenges that the international community is currently facing. Particularly, food shortages afflict many people living mainly in the Asia-Pacific region. "Food" as a priority theme encompasses both food production and environmental science to solve these issue.

Food Group



Dr. Sato



Dr. John Ralph



Dr. Hisashi Koiwa



Dr. Wout Boerjan

Takashi Gomi Team

■ Research and development of green infrastructure for resilient rural areas



Dr. Gomi



Dr. Roy C. Sidle



Dr. Lee H.
MacDonald

Naoko Ohtsu Team

■ Research of cultivation techniques using biological interaction to ensure maximum yeild under nutrient deficiency and environmental stress caused by global change



Dr. Ohtsu



Dr. Gary Stacey



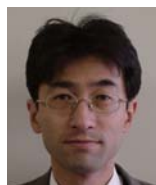
Dr. Rowan F. Sage



Dr. Sonoko
Bellingrath-Kimura

Koki Toyoda Team

■ Development of soil evaluation systems for environmentally friendly sustainable corp production



Dr. Toyoda



Dr. Karl Ritz



Dr. Roland Perry

Gen Watanabe Team

■ Investigation of wildlife to evaluate effects of microplastics contamination on global ecosystem



Dr. Watanabe



Dr. David Crews



Dr. Andrea Gore



Dr. John Godwin

Taishi Umezawa Team

■ Functional and biochemical interactions between abiotic and biotic stress responses in plants



Dr. Umezawa



Dr. Scott C. Peck



Dr. Jeffrey
Anderson



Dr. Vojislava Grbic

Shinsuke Koike Team

■ Researches on biodiversity-friendly and sustainable natural resource management in terrestrial ecosystems.



Dr. Koike



Dr. Tatsuya Amano



Dr. Andreas
Zedrosser



Dr. Sam Steyaert

Kenta Umabayashi Team

■ Development of reliable and secure information and communications infrastructure for Network Robot



Dr. Umabayashi



Dr. Giulio Sandini



Dr. Antti Töllli



Dr. Janne Lehtomäki

Energy

Energy issues should be considered to be a great challenge facing humanity. “Energy” as a priority theme addresses energy problems according to the application of capacitors, LED, ionic liquids, and smart green mobility.

Energy Group



Dr. Tanaka



Dr. Michal Boćkowski



Dr. Chris Bowler



Dr. Dana Kulic

Toshio Ogasawara Team

- Development of next generation ultra-light mobility



Dr. Ogasawara



Dr. Frédéric Barlat



Dr. Yannis Korkolis



Dr. Sam Coppieters

Yoichi Tominaga Team

- Development of polymeric materials for flexible energy conversion/storage devices



Dr. Tominaga



Dr. Jusef Hassoun



Dr. Suwabun Chirachanchai



Dr. Xiangbing Zeng

Akihiko Terada Team

- A new nitrogen management system in water/wastewater treatment



Dr. Terada



Dr. Barth Smets



Dr. Kartick Chandran



Dr. Susanne Lackner

Atsushi Arakaki Team

- Understanding and application of regulation mechanisms of hardness and toughness of biological hard materials



Dr. Arakaki



Dr. David Kisailus



Dr. Yasuo Yoshikuni

Strategic Research Initiative for Interdisciplinary

Without being confined to a single field, TUAT's excellent researchers from different fields of research are gathered here to propose and to promote new and innovative research with unprecedented ideas by fusing areas of expertise that go beyond academic majors.

Katsuhiko Naoi Team

- Harmony between environment and energy: Energy facilitator leading to the future society



Dr. Naoi



Dr. Patrice Simon



Dr. Patrick Rozier



Dr. Bruce Dunn

Life Science

Life science has a significant impact on our health and well-being. "Life Science" as a priority theme pushes and precedes the edge of technical possibility, mainly in protein synthesis and life science.

Life Science Group



Dr. Yoshida



Dr. Hiroaki Matsunami



Dr. Florian Grundler



Dr. Yoshifumi Itoh

Tetsuya Mizutani Team

■ Research on emerging viral infectious diseases outbreaks in the near future



Dr. Mizutani



Dr. Shinji Makino



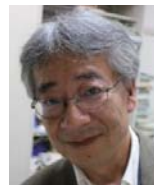
Dr. Christopher Buck



Dr. Monirul Md Islam

Kenji Ogino Team

■ Development of functional nano-capsules and materials for drug delivery systems and other applications



Dr. Ogino



Dr. Guanghui Ma



Dr. Aibing Yu



Dr. Sanjay Mathur

Toshihisa Tanaka Team

■ Development of AI Technologies for Biomedical Informatics and its Applications



Dr. Tanaka



Dr. Andrzej Cichocki



Dr. Antonio Ortega



Dr. Fabien Lotte

Kazunori Ikebukuro Team

■ Development of analytical method for CpG methylation of genomic DNA based on its structural change



Dr. Ikebukuro



Dr. Richard Simpson



Dr. Koji Sode



Dr. Manbock Gu

Yoshiyuki Tagawa Team

■ International Research Center for Dynamic Interfacial Mechanics - development of the biomaterial 3D printing technology -



Dr. Tagawa



Dr. Xuehua Zhang



Dr. Jose Gordillo



Dr. John W.M. Bush

Kentaro Nagaoka Team

■ Implication of breast milk and gut microbiota on maternal-infant communication for growing up healthy



Dr. Nagaoka



Dr. Lief Andersson



Dr. Hirohito Yamaguchi



Dr. Wanzhu Zin

Kyosuke Shinohara Team

■ Development of organelle targeting system for solving biomedical issues: From phase separated proteins to small chemical compounds.



Dr. Shinohara



Dr. Takanari Inoue

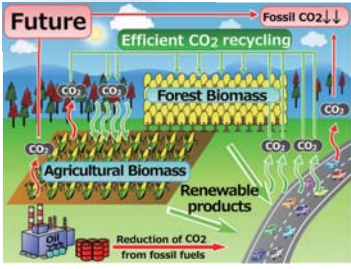


Dr. Micha Fridman

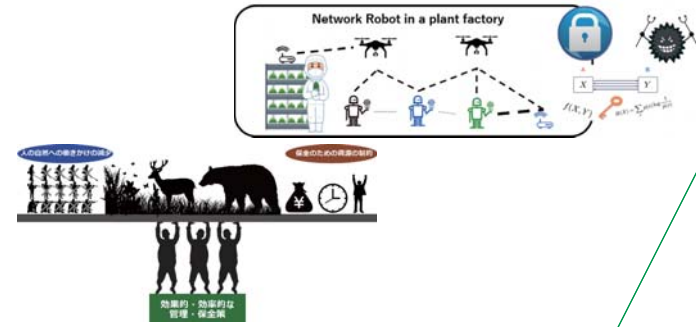
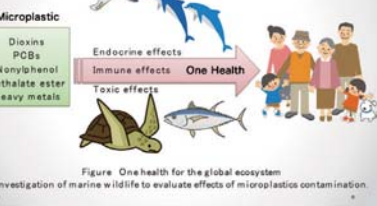


Dr. Naoki Yamanaka

Food

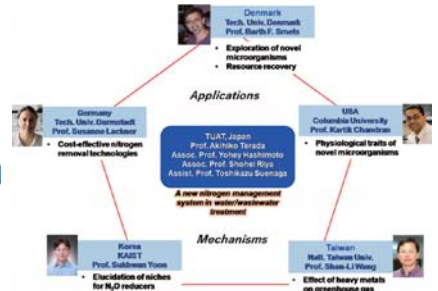
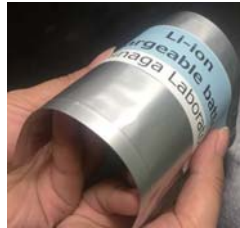
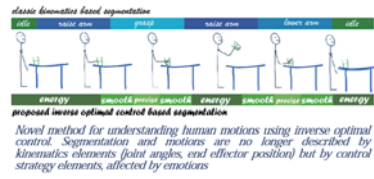


- (1) Evaluating the availability and quality of water resources in watersheds
- (2) Land-use planning for resource management and disaster mitigation

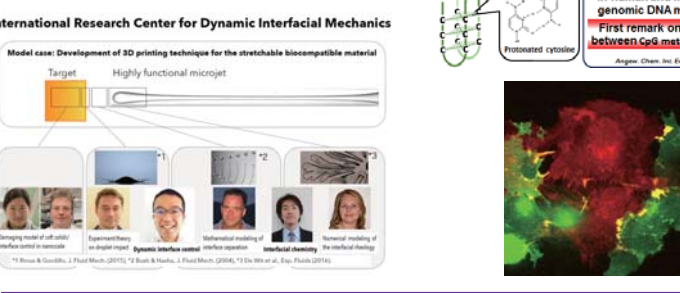
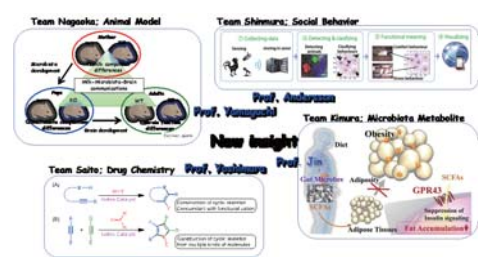
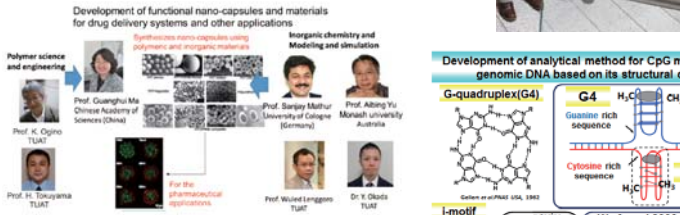
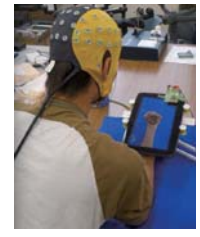
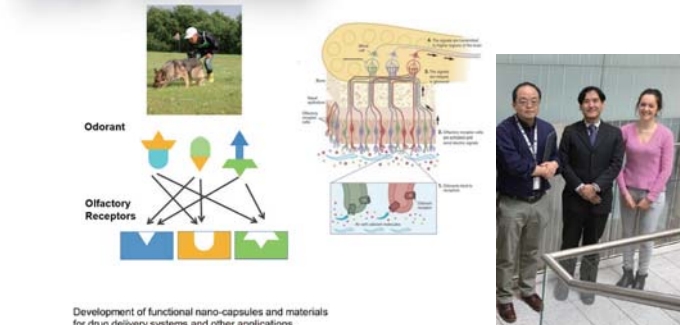


Energy

Mission: aims to understand metabolism, ecology, and evolution of oil-producing microalgae.



Life Science



Interdisciplinary Fields





Fuchu Campus

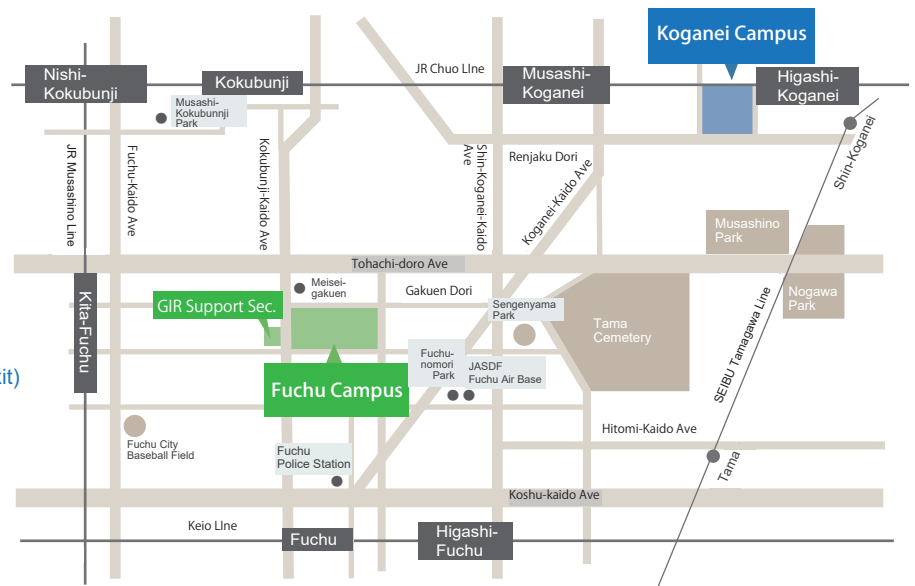
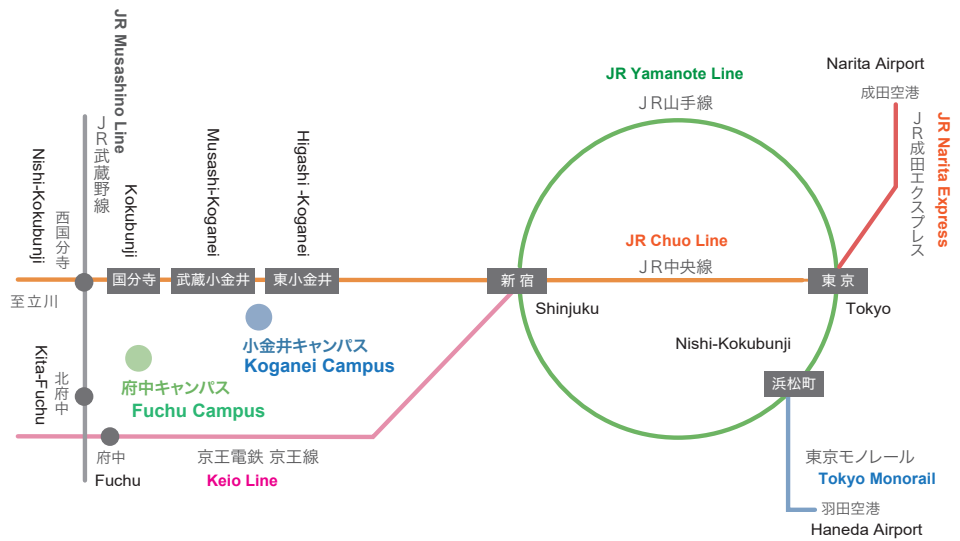
3-5-8 Saiwai-cho, Fuchu-shi, Tokyo 183-8509

- **JR Chuo Line "Kokubunji Station" (South Exit)**
Keio Bus (Bus Stop #2)
Bus # 寺 91 bound for "Fuchu Station via Meisei Gakuen,"
Get off at "Harumi-cho" bus stop
About 10 minutes bus ride.
- **Keio Line "Fuchu Station" (North Exit)**
Keio Bus (Bus Stop #3)
Bus # 寺 91 bound for "Kokubunji Station via Meisei Gakuen,"
Get off at "Harumi-cho" bus stop
About 7 minutes bus ride.
- **JR Musashino Line "Kita-Fuchu Station"**
About 12 minutes walk

Koganei Campus

2-24-16 Naka-cho, Koganei-shi, Tokyo 184-8588

- **JR Chuo Line "Higashi-Koganei Station"**
South Exit : About 8 minutes walk
nonowa Exit: About 6 minutes walk
- **JR Chuo Line "Musashi-Koganei Station" (South Exit)**
About 20 minutes walk



Contact

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Research Promotion Office, Research Support Office

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