Program for the Development
of Next-generation Leading Scientists
with Global Insight (L-INSIGHT)

HeKKSaGOn•L-INSIGHT
Spin-off Programme, 2022 [HLSP]

An Initiative among
Kyoto University,
Heidelberg University,
Karlsruhe Institute of Technology and
University of Göttingen

Registration Required
Online Forum (Zoom)

Friday 2 December 2022
17:30–19:45 JST | 9:30–11:45 CET

REGISTRATION

Due by
1 December 2022

URL
https://forms.gle/jXPu6cMfnx6mxqs26

Seven Dialogues *for* Future Research and Science *with* Early Career Researchers

Dr. IIMA Mami

Bridging the gap between macro and micro scale in tumor imaging

Dr. OKAMURA Ryosuke

Surgical management and biomarker-driven cancer therapy for gastrointestinal cancer patients

Dr. TANAKA Tomohiro

Hydrological research in 2050

Dr. EGUCHI Kana

How healthcare technology should overcome the digital literacy gap in the aged society?

Dr. INOUE Kosuke

The role of epidemiology and statistics in healthcare science in 2030

Dr. ISOBE Masanori

How human species will be, can be, should be

Dr. SHIRAISHI Kosuke

How can/should we integrate the knowledge of phyllosphere plant-microbe interactions into policy dialogues at the global level?

OVERVIEW

This forum supports next generation of researchers in forming special international and inter-generational connections early in their careers in the hope of creating foundations for them to excel. This is a new initiative that has spined-off from the friendly relationship between German and Japanese universities fostered through the HeKKSaGOn (The German–Japanese University Alliance) framework, which is now in its eleventh year.

This open online forum consists of several dialogues among researchers from Kyoto University, Heidelberg University, Karlsruhe Institute of Technology and University of Göttingen. Each group will discuss an interdisciplinary topic(s) raised by fellows from L-INSIGHT, a community of early career researchers at Kyoto University.

The fellows believe that these trans-disciplinary topics including research environments and ways of thinking in other spheres of research are important in discussing the development of their future research.

We cordially invite you to the discussions regarding the topics of your choice. Please sign up now to find your new and future connections through this opportunity.

DIALOGUES

Surgical management and biomarker-driven cancer therapy for gastrointestinal cancer patients

Dr. OKAMURA Ryosuke

Despite the recent development of surgical technology, we unfortunately see postoperative disease recurrence in many of advanced GI cancer cases. We surgeons should know the limits of surgical strategy for controlling tumor spread. How should current precision oncology, such as molecular profiling and biomarker-driven cancer therapy, be combined with surgery to improve GI cancer patients' outcomes?

Hydrological research in 2050

Dr. TANAKA Tomohiro

Water sciences, such as hydrology, climatology, limnology, oceanology, coastal engineering, etc., pay the ever-strongest attention to climate change (CC) and its impact assessments. In 1990s and 2000s, CC research in hydrology was simply translating future projected rainfall to the resultant water cycle. Now, this topic became further more sophisticated, including more detailed hydraulic analysis such as inundation, landslides and their translation into economic impacts. The urgent needs of society for climate change adaptation accelerated such studies during this short period. In 2050, when climate change more explicitly emerges, how will or should our hydrological research, especially for CC assessments/adaptation/mitigation go? I would like to discuss the future of hydrology research: more social sciences associated, climate change validation, hydrological modelling, hydrological observation, etc.

The role of epidemiology and statistics in healthcare science in 2030

Dr. INOUE Kosuke

Given the recent rapid advancement of computer science, big data, and machine learning as well as increasing concern over social disparity, what knowledge and skillsets would be appreciated in future science and medicine? What can we do to improve health towards precision medicine (in real meaning)?

How can/should we integrate the knowledge of phyllosphere plant-microbe interactions into policy dialogues at the global level?

Dr. SHIRAISHI Kosuke

Plant-microbe interaction is a complex, dynamic and continuous process. It has been shown to support plant growth and increase host resistance to pathogens, and the rhizosphere, the underground part, has been the center of the research. Recently, the phyllosphere, the plant leaf surface, has attracted many scientists and phyllosphere microbes have been recognized as important players. New insights have been put into practical applications such as biostimulants for crop yield promotion and plant protection from pathogens. Looking at the accumulating evidence from the perspective of scientific advice for policy-making, the plant-microbe interaction of the rhizosphere has been discussed in international policy dialogues, whereas that of the phyllosphere is stuck in dialogues among researchers. Through some international expert communities, we have started to share new knowledge on phyllosphere microbiology with the expectation to bring the discussion to international policy dialogues for food security and environmental protection.

How human species will be, can be, should be

Dr. ISOBE Masanori

Currently, various state-of-art technics to enhance intellectual ability, such as decoded neurofeedback, have been developed and are now close to be implemented in the clinical field. Careful discussion in advance would be desirable from multiple perspectives as follows; how far the expansion of physical and cognitive functions should go, how far it should be allowed to go, and what kind of common understanding and restrictions are necessary when this expansion proceeds. For example, restrictions have been placed on human cloning, but what extent do such restrictions need to be extended to enhancement of our physical/mental activities? What remains as our individuality? I would like to discuss these issues with people from various fields including those who specialize in bioethics, law, and those who are researching the improvement of cognitive function and recovery of physical function.

How healthcare technology should overcome the digital literacy gap in the aged society?

Dr. EGUCHI Kana

Aging and health now become a worldwide problem. On the basis of WHO's fact sheets[ref1], the proportion of the world's population over 60 years will become 22%, while 80% of them will be living in low- or middle-income countries. These situations may cause an ever-greater digital literacy gap, which may even affect access to healthcare or medical service.

At this moment, our study has already faced the digital literacy gap-induced problems in collecting side-effect reports from patients undergoing cancer pharmacotherapy: we confirmed that the use of smartphone applications may become a big hurdle for aged Japanese people. In this dialogue, I would like to first exchange the current situation in Germany and Japan related to the issues surrounding healthcare induced by the digital literacy gap. Then discuss possible issues induced by the digital literacy gap in the future and how we can/should overcome the vicious circle of technology development and the digital literacy gap.

[ref.1] https://www.who.int/news-room/fact-sheets/detail/ageing-and-health

Bridging the gap between macro and micro scale in tumor imaging

Dr. IIMA Mami

We will aim to establish a trans-scale imaging method that connects a whole body, tissue, and cellular scales using MRI etc, especially diffusion MRI, which can evaluate the movement of water molecules in vivo. In the diagnosis of cancer, it is important to understand the phenomenon and elucidate the mechanism by traversing various scales, such as the tumor microenvironment and micrometastases that may exist throughout the body. However, the understanding of the principles that will lead to the elucidation of new pathological conditions at the microscopic level involving elemental interactions in biomolecules and cells, and at the meso- and macro-level involving tissues and organs, has not yet been fully developed.

The current MRI has difficulty in measuring and evaluating the micro level, especially in terms of resolution, and thus we will aim to develop this method further to establish trans-scale imaging to visualize cancer characteristics on a longitudinal scale and exploit them for cancer diagnosis and prognosis prediction.

Organizers Heidelberg University, Karlsruhe Institute of Technology, University of Göttingen and Kyoto University
Collaborator Kyoto University European Center
Contact Kyoto University Center for Enhancing Next-Generation Research
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PROGRAM

JST	CET		Speakers	Keywords
		| Opening |		
17:30	09:30	Opening remarks	Prof. YOKOYAMA Mika Deputy Executive Vice-President, Director of Kyoto University European Center, Kyoto University Dr. Klaus Rümmele Head of International Affairs Business Unit, Karlsruhe Institute of Technology	
		| Parallel dialogues |		
17:40	09:40	Dialogue —— 1 **Surgical management and biomarker-driven cancer therapy for gastrointestinal cancer patients**	Dr. OKAMURA Ryosuke L-INSIGHT fellow / Kyoto University Hospital / Assistant Professor Dr. Johannes Betge Translational Gastrointestinal Oncology and Preclinical Models Junior Clinical Cooperation Unit, DKFZ Dr. Jörg Leupold Department of Experimental Surgery, Cancer Metastasis, Heidelberg University Dr. Nitin Patil Department of Experimental Surgery, Cancer Metastasis, Heidelberg University Prof. Dr. Anne-Christin Hauschild Department of Medical Informatics, University Medical Center Göttingen, University of Göttingen	Biomarker Precision Medicine Molecular Profile Postoperative Surveillance
		Dialogue —— 2 **Hydrological research in 2050**	Dr. TANAKA Tomohiro L-INSIGHT fellow / Graduate School of Engineering, Kyoto University / Assistant Professor Dr. Simon Schaub Institute of Political Science, Heidelberg University Guyen Battuvshin Institute of Geography, Heidelberg University Prof. Dr. Martin Sauter Geoscience Center, University of Göttingen	Flood Risk Assessment Climate Change Statistics Numerical Calculation Urban Planning Economics Insurance Earth Science
		Dialogue —— 3 **The role of epidemiology and statistics in healthcare science in 2030**	Dr. INOUE Kosuke L-INSIGHT fellow / Graduate School of Medicine, Kyoto University / Assistant Professor PD Dr. Volker Winkler Heidelberg Institute of Global Health, Epidemiology of Transition, Heidelberg University Hospital Junior-Prof. Dr. Tim Mathes Department of Medical Statistics at the University Medical Center Göttingen Pelin Ünal Genomic Epidemiology Group, DKFZ Tomislav Vlaski Division of Clinical Epidemiology and Aging Research, DKFZ Professor Dr. Tim Friede Head of Department of Medical Statistics, University Medical Center Göttingen	Machine Learning Health Services Research Endocrinology Epidemiology Causal Inference Cardiovascular Epidemiology
		Dialogue —— 4 **How can/should we integrate the knowledge of phyllosphere plant-microbe interactions into policy dialogues at the global level?**	Dr. SHIRAISHI Kosuke L-INSIGHT fellow / Graduate School of Agriculture, Kyoto University /Assistant Professor Gideon Bergheim Center for Organismal Studies, Heidelberg University Dr. Islam Khattab Institute for Biological Interfaces, Karlsruhe Institute of Technology Prof. Dr. Tobias Erb Max Planck Institute for Terrestrial Microbiology, Marburg	Applied Microbiology Molecular Cell Biology Plant-Microbe Interaction Methylotrophs C1 Bioeconomy
		Dialogue —— 5 **How human species will be, can be, should be**	Dr. ISOBE Masanori L-INSIGHT fellow / Kyoto University Hospital / Assistant Professor Dr. Jerome Foo Department of Genetic Epidemiology in Psychiatry, Central Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University Kelly Amal Dhru, LL.M. Faculty of Law, Universität Hamburg Konrad Waschkies Department of Psychiatry and Psychotherapy, University of Göttingen	Psychiatry Eating Disorder Behavioral Addiction MRI Neuromodulation
		Dialogue —— 6 **Bridging the gap between macro and micro scale in tumor imaging**	Dr. EGUCHI Kana L-INSIGHT fellow / Graduate School of Medicine, Kyoto University / Program-Specific Assistant Professor Dr. Nicolai Spicher Department of Medical Informatics, University Medical Center Göttingen, University of Göttingen Dr. Sebastian Herberger Interdisciplinary Center of Sleep Medicine, Charité – Universitätsmedizin, Berlin	Medical Engineering Biosignal Processing Wearable Computing Medical Informatics Human-Computer Interfaces and Interactions
		Dialogue —— 7 **Bridging the gap between macro and micro scale in tumor imaging**	Dr. IIMA Mami L-INSIGHT fellow / Kyoto University Hospital / Assistant Professor A/Prof. Dr. Dimitrios Karampinos Experimental Magnetic Resonance Imaging, School of Medicine & Munich Institute of Biomedical Engineering, Technical University of Munich PD Dr. Sebastian Bickelhaupt Institute for Radiology, University Hospital Erlangen Dr. Felix Kurz Division of Radiology, DKFZ Dr. Van Anh Tu Experimental Magnetic Resonance Imaging, School of Medicine & Munich Institute of Biomedical Engineering, Technical University of Munich	Radiology Cancer Breast Cancer MRI Diffusion MRI
		| General discussion |		
18:55	10:55	Wrap-ups from each group (5min.×7groups)		
19:25	11:25	Comments from guests	Prof. Dr. Thomas Kneib Dean of research at the Faculty of Business and Economic Sciences, University of Goettingen Dr. Michael Riemann Botanical Institute, Karlsruhe Institute of Technology Prof. TANAKA Motomu Institute for Physical Chemistry, Heidelberg University Prof. KONO Yasuyuki Vice President, Director International Strategy Office, Kyoto University	
19:40	11:40	Closing	Nicole Dorn International Relations Division, Department Study Abroad, Exchange Programmes, International Cooperation, Heidelberg University Prof. AKAMATSU Akihiko Director, The Strategic Development Hub for Early Career Researchers, Kyoto University	