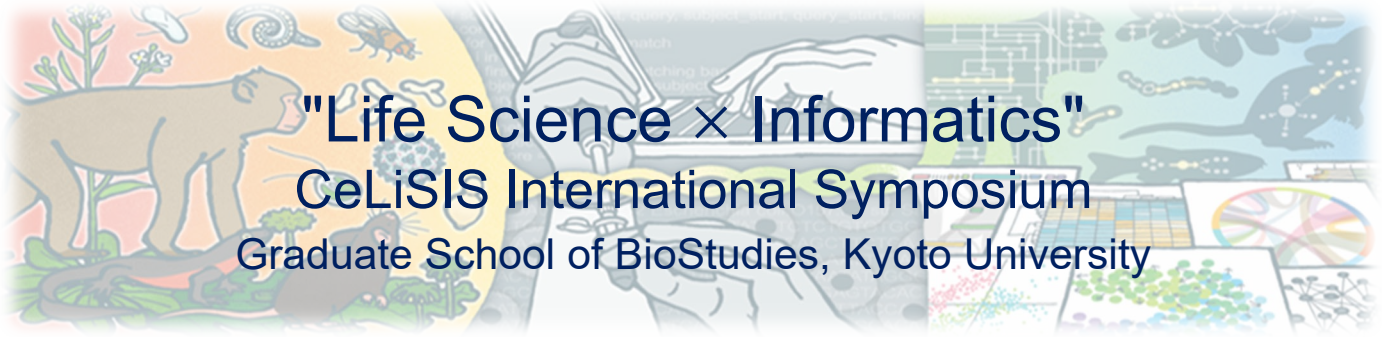

"Life Science × Informatics"
CeLiSIS International Symposium
Graduate School of BioStudies, Kyoto University

Integrating informatics and omics approaches for understanding complex biological systems

10:00-14:40, December 11(Thu), 2025
Shirankaikan (Inamori Hall), Kyoto University
Map: https://maps.app.goo.gl/rHH5vsyJLg4pEe6F7

Program

10:00 – Symposium Introduction and Lecture
Hirokazu Toju (Kyoto University)
"Forecasting and Controlling Animal- and Plant-associated Microbiome Dynamics"

10:30 – Special Guest Keynote Lecture
Wolfram Weckwerth (University of Vienna)
"From Pangenomics to Panomics – AI-assisted causal modelling of the GxExP equation"

11:10
Akifumi Sugiyama (Kyoto University)
"Metabolome and Microbiome Analysis of the Tomato Rhizosphere and Their Application for Enhancing Resilient Crop Performance"

11:40–12:40 – Lunch Break

12:40
Sotaro Takano (RIKEN)
"Resource Niche Partitioning Shaped by Microbial Growth Strategies: Insights from Metabolic Models"

13:10
Yuya Sato (AIST)
"Unraveling the Invisible Microbial Interactions and Functions"

13:40
Kenta Suzuki (RIKEN)
"Intersection of Dynamical Systems Theory and Statistical Science: Inferring Systems' Stability and Causality"

14:10–14:40 – Free Discussion over Coffee

Registration: https://forms.gle/R71F4r2cdbtwi8eM7

Contact: Center for Living Systems Information Science (CeLiSIS), Graduate School of BioStudies, Kyoto University <E-mail:celisis@mail2.adm2.kyoto-u.ac.jp>

Special Guest Introduction: Prof. Wolfram Weckwerth (University of Vienna)

Prof. Wolfram Weckwerth is a leading figure in metabolomics, systems biology, and multi-omics integration, currently serving as Director of the Vienna Metabolomics Center (VIME) and Professor of Ecogenomics and Systems Biology at the University of Vienna. His laboratory has pioneered methodologies that connect metabolomics with transcriptomics, proteomics, and phenomics, establishing comprehensive "panomics" frameworks for understanding biological complexity. A central focus of his research is the development of data-driven and AI-assisted causal modeling approaches that quantitatively dissect the genotype–environment–phenotype (GxExP) relationship. Through innovative computational pipelines and experimental designs, Prof. Weckwerth has advanced our ability to characterize dynamic biological networks, plant and microbial stress responses, and ecosystem-scale functional patterns.

He has authored numerous highly cited publications, contributed substantially to international consortia, and played a major role in shaping the global metabolomics research landscape. His interdisciplinary vision—spanning molecular biology, ecology, agronomy, and computational science—continues to inspire collaborative research aimed at integrating omics-scale data into predictive models of complex biological systems.

京都大学医学部構内 キャンパスマップ

（Campus Map of the Kyoto University Faculty of Medicine Area）

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Lab. of Ecosystems and Coevolution

CeLiSIS