

Leica Microsystems K.K.**Date** Fri. March 13 12:45-13:45**Venue** Room C

Dr. Mina OHTSU (Faculty of Advanced Life Science, Hokkaido University)

Seeing the Unseen: Microscopic approaches to plant–microbe interactions

Plants survive through interactions with a wide range of organisms in their environment, including microorganisms. Despite significant advances achieved through molecular and genetic approaches, microscopic visualization of plant–microbe interactions at cellular and histological levels remains essential for elucidating the underlying mechanisms. This talk presents microscopic analyses of plant–microbe interactions and microbe-induced alterations in plant tissues, highlighting both the complexity and diversity of these interactions.

Nobuhide Tsurumaki (Leica Microsystems K.K.)

New Imaging Enabled by Mica — Visualizing “Spatiotemporal Correlation” in one system through simultaneous 4-color fluorescence acquisition

Mica enables one-click switching between camera-based widefield and confocal imaging in a single system and, with FluoSync, performs simultaneous 4-color fluorescence acquisition. By eliminating the temporal delays and spatial misalignment inherent in sequential imaging, and by suppressing crosstalk, true spatiotemporal correlations can be visualized. In this presentation, we will overview Mica’s key technological innovations and introduce a practical, high-throughput workflow that dramatically reduces setup steps without compromising data quality. We will also demonstrate end-to-end operation—from rapid sample overview to high-resolution acquisition—using real experimental datasets.

NTT, Inc. (NTT R&D)**“Restoring the Global Environment and Building a Sustainable Society
~ The Challenge of NTT Space Environment and Energy Laboratories
Harnessing Photosynthetic Organisms ~”****Date** Fri., March 13, 12:45–13:45**Venue** Room G**Speakers:** Sousuke Imamura, Kazuma Sakoda, Ken Okamoto, Hidenori Iwashita**Innovating with Biology for a Future Where Food and Environment Are in Harmony**

NTT R&D, as the core research organization of the NTT Group, is advancing innovative technologies to restore the global environment and realize a sustainable society. The Space Environment and Energy Laboratories, established in 2020, focuses on biological approaches to harmonize food systems and environmental sustainability. Global warming, driven by rising greenhouse gas concentrations, threatens ecosystems worldwide. Our research aims to control biological functions and redirect material cycles to enhance greenhouse gas absorption and reduce emissions across marine and terrestrial environments. In parallel, we are developing breeding technologies to improve the functionality of algae and crops, dramatically increasing their industrial value while contributing to food security. This seminar will present our attempts and future directions.

For more details, please visit our website:

– Space Environment and Energy Laboratories: <https://www.rd.ntt/e/se/>

– Recruitment Information: <https://www.ntt-labs.jp/saiyo/e/>



PCP Luncheon Seminar: The importance of society journal publishing and the benefits of PCP



Date Fri., March 13, 12:45–13:45

Venue Room Z

Speakers: Liliana Costa (Managing Editor), Jenny Mortimer (Reviews Editor), Kenichi Tsuda (Senior Editor), Misato Ohtani (Senior Editor), Tetsuya Higashiyama (Editor-In-Chief); Hitoshi Sakakibara (Deputy President of JSPP)

This seminar aims to foster an understanding of the important role played by society journals for the plant science community, with a special focus on *Plant & Cell Physiology (PCP)*. As the official journal of the Japanese Society of Plant Physiologists (JSPP), *PCP*'s principal aim is to support the work and international career development of its members, but also to promote plant science world-wide. In this session, we will demonstrate the many benefits of supporting *PCP* as your society journal—such as its awards and relatively low publication fees and waivers—and explain how the success of *PCP* is directly correlated with the future growth and expansion of the JSPP.

We will also bring news of the latest developments from *PCP*, including how we aim to broaden the journal's scope further to embrace more researchers from other established and emerging fields, while continuing to strengthen the fields in which we excel. To this end, we will discuss the various internal activities overseen by the many research leaders on our international editorial board, and of the special issues that reinforce ties with other international societies and plant scientist consortia. By reflecting on these strengths, we hope to raise awareness among Society members and work with you towards strengthening the future growth and development of *PCP*, the JSPP, and the broader plant science community.

Seminar Overview:

1. Short presentations from speakers
2. Q&A Discussion

Evident Corporation Luncheon Seminar

Date Sat., March 14, 12:00–13:00

Venue Room G

Live-cell imaging of early embryogenesis in plants

Minako Ueda, Ph.D., Graduate School of Life Sciences, Tohoku University

In many plants, fertilization initiates plant body formation. For a long time, it was difficult to observe real-time dynamics of zygotes and embryos because they are hidden deep within thick maternal tissues. However, advances in multiphoton excitation microscopy and high-sensitivity detectors, which are suitable for deep imaging, have made it feasible to perform high-resolution live imaging of spatiotemporal dynamics during early embryogenesis.

In this seminar, I will present live-imaging data from *Arabidopsis thaliana* (angiosperm), *Marchantia polymorpha* (liverwort), and *Ceratopteris richardii* (fern), introducing technical optimizations for imaging, along with quantitative analysis of the obtained datasets to detect subtle but important changes, to highlight the utility of live-cell analysis.

- 1) Kimata et al. *PNAS*, 113(49), 14157-14162., 2016
- 2) Kimata et al. *PNAS*, 116(6), 2338-2343., 2019
- 3) Tanaka et al. *Current Biology*, 34(20) 4639-4649., 2024
- 4) Hanaki et al. *Plant Methods*, 21(1):149., 2025

Evolved Confocal Imaging to Accelerate Research: The Challenge for High Speed, High Efficiency, and High Image Quality

Takahisa Nidaira, Evident Corporation



Confocal and Multiphoton Laser Scanning Microscope FLUOVIEW FV5000

EVIDENT

Seminar on Gender Equality

“Let’s Talk Together about Careers and PhD Pathways”

Date Sat., March 14, 12:15–13:05

Venue Second Floor, Academy Common Building
(Same at the social gathering at Meiji Univ)

Organizer: JSPP Gender Equality Committee

Moderator: Kotaro Yamamoto (Yokohama City Univ./JSPP Gender Equality Committee)

Speaker: Fumiyo Kaneko (Japan Society for the Promotion of Science)

This seminar provides an open forum to discuss concerns and challenges related to pursuing a PhD and sustaining a research career across diverse positions and life stages. We will explore how institutional frameworks and cultural norms can support work–life balance. The program includes an overview of gender ratio trends from the JSPP Gender Equality Questionnaire and a presentation by JSPS (Japan Society for the Promotion of Science) on support programs for early-career researchers. In the second half, participants will join small-group discussions based on themes from recent surveys, building a new community space to share experiences and address career-related issues. We warmly welcome participation from all members of the society, including students, early-career to senior researchers, advisors, and mentors.

<https://forms.office.com/r/PtU6ysfXcv>



Advanced Bioimaging Support Platform (ABiS) Luncheon Seminar

Overcoming Challenges in Bioimaging: Practical Strategies for Using ABiS Support

Date Sun., March 15, 12:30–13:30

Venue Room C

Chair: Megumi Maruyama (Specially Appointed Associate Professor,
National Institute for Physiological Sciences)



Speaker: Shoji Mano (Associate Professor, National Institute for Basic Biology)

Title: What's ABiS?

In life science research, imaging technologies that visualize everything from molecules, cells, and tissues to whole organisms have become indispensable analytical methods. However, with the increasing sophistication and cost of recent equipment, as well as the complexity of image analysis techniques, it is becoming difficult for individual researchers to adopt and maintain cutting-edge technologies on their own. Against this background, the Advanced Bioimaging Support Platform (ABiS) was established as a collaborative network of Japanese universities and research institutions, with the National Institute for Physiological Sciences (NIPS) and the National Institute for Basic Biology (NIBB) serving as its core nodes. This platform strongly promotes KAKENHI-funded projects by providing imaging support for state-of-the-art light microscopy, electron microscopy, and magnetic resonance imaging (MRI), as well as assistance with advanced image analysis techniques. In this presentation, we will introduce ABiS's support activities and how to utilize our services.

Speaker: Yoshitaka Kimori (Professor, Gunma University)

Title: Image Analysis Support Based on Image-Data Science

Images acquired using imaging devices such as microscopes are raw data (unstructured data) obtained by directly imaging the sample containing the subject of analysis. Although image data are represented as a set of pixel values, these pixel values rarely correspond directly to biological meaning. For example, we can recognize various organelles and intracellular structures from microscope images of cells. However, no intrinsic pixel values exist that uniquely represent “mitochondria” or “actin filaments.” Pixel values within the region constituting a mitochondrion typically appear in regions outside the mitochondrion, such as noise or background structures. Thus, a gap known as the semantic gap exists between the representation of image data (pixel values) and human recognition and the image interpretation. Many challenges addressed in image analysis support aim to extract biologically meaningful information from image data. Therefore, bridging this gap is key to successfully conduct support activities. In this presentation, I will reflect on my previous support activities and focus on approaches to bridge gaps, specifically those based on image-data science. Additionally, I will explain the current state and future development of support activities utilizing artificial-intelligence technologies, including deep learning.

Speaker: Kagayaki Kato (Assistant Professor, National Institute for Basic Biology)

Title: Practical Methods for Measuring Biological Image Data

In recent years, advances in microscopy technologies have made it routine to acquire high-resolution, multidimensional (3D/4D) image data in biological research. At the same time, how such image data should be quantitatively analyzed and translated into biological insight remains a major challenge for many researchers. Image analysis is the process of extracting pixel-based and morphological information from acquired images and transforming them into numerical values that can be used as objective metrics for comparison and evaluation. However, in biological research, the wide diversity of observation targets and imaging modalities often requires analysis methods themselves to be implemented and customized to suit individual experimental systems. In this presentation, I will present analysis examples based on image data acquired across a wide range of spatial scales, from cells to tissues and whole organisms, using diverse biological model systems. Through these examples, we will engage in practical discussions on what kinds of quantitative information can be obtained through image analysis and how such measurements contribute to biological interpretation. In addition, the seminar will address the importance of constructing analysis pipelines for the stable processing and reuse of large-scale image datasets, as well as the design of data management and storage systems, and will introduce practical techniques for achieving efficient and reproducible image analysis.

Luncheon Seminar

“Why Study/Work Abroad?—Voices of Experience”

Date Sun., March 15, 12:30–13:30

Venue Room Z

Co-organized by the JSPP International Committee and the United Japanese Researchers Around the World (UJA)

Panelists: Munenori Kitagawa (College of Horticulture & Forestry Sciences, Huazhong Agricultural University; Professor)
Makoto Shirakawa (Academia Sinica, Institute of Plant and Microbial Biology; Assistant Research Fellow)
Satoyo Oya (Max Planck Institute for Biology; Post-doc)
Hiromu Nakao (The University of Tokyo; PhD student)
Ren Ujimatsu (The University of Tokyo; PhD student)

The Japanese Society of Plant Physiologists (JSPP) is committed to enhancing the international research competitiveness and visibility of the JSPP community. Recognizing the value of overseas experience for researchers, we acknowledge that, despite the growing interest in studying and working abroad, many hesitate to do so due to a lack of practical information, uncertainties from the COVID-19 pandemic, and global economic instability. We aim to address these concerns by highlighting the importance of firsthand insights from researchers with international experience, promoting studying/working abroad as a viable and valuable career opportunity.

In collaboration with the United Japanese Researchers Around the World (UJA), this luncheon seminar features speakers with diverse experiences in graduate and postdoctoral studies abroad in the short and long term. Speakers will join either on-site or online to share their insights through flash talks, followed by a panel discussion, where we will address questions from the audience.

We extend a warm welcome to all individuals, regardless of their specific interests/experience/willingness to take a career path outside of Japan.