

**SPEAKER BIOGRAPHICAL SKETCHES**

Imaging the Brain: From Molecules to Circuits and Beyond  
Friday, December 8, 2017



**Daniel Colón-Ramos** is an Associate Professor of Cell Biology and Neuroscience at Yale University. The Colón-Ramos lab is interested in how synapses are precisely assembled to build the neuronal architecture that underlies behavior. To address this, they developed tools in the thermotaxis circuit of *C. elegans*. Their system enables unbiased genetic screens to identify novel pathways that instruct synaptogenesis *in vivo*, and single-cell manipulation of these pathways to understand how they influence behavior. As mechanisms underlying synapse structure and function are conserved, the research program seeks to enhance our understanding of synaptic cell biology in higher organisms, which may be important for disease.



**Mark Ellisman** is a Neuroscientist who directs the National Center for Microscopy and Imaging Research (NCMIR), an internationally acclaimed technology development center and research resource, at UC San Diego. He is a pioneer in the development of 3D light and electron microscopy and emphasizes application of these imaging strategies to the study of brains and the many types of cells which form nervous systems. He partnered with Roger Y. Tsien for nearly 30 years, developing new probe technologies for correlated light and electron microscopy. Current efforts include new probe, instrument and technique development for multiscale and multimodal imaging - all at the frontiers of microscopy, computer science and computational biology.



**Harald Hess** is a Group Leader at the Janelia Research Campus, Howard Hughes Medical Institute. After receiving a Ph.D. in physics at Princeton University, Hess developed low temperature scanning probe microscopes to visualize diverse physics phenomenon at Bell Labs. In 1997, he developed equipment for hard disk drive and semiconductor inspection and production. In 2005, he and colleague, Eric Betzig, invented a high resolution microscope, PALM, for cell biology. PALM was built in a La Jolla condo, tested at the National Institutes of Health and extended to 3D at Janelia/HHMI. He is also developing 3D electron microscopy techniques for volume imaging of cells and neural tissue and exploring how they can be combined with PALM.



**Na Ji** studied chemistry and physics as an undergraduate at the University of Science and Technology of China and later as a graduate student at University of California, Berkeley. In 2006, she moved to the Janelia Research Campus, Howard Hughes Medical Institute, and worked on improving the speed and resolution of *in vivo* brain imaging. She started her own group at Janelia in 2011, where, in addition to imaging technology development, her lab applies the resulting techniques to outstanding problems in neurobiology. She is now an Associate Professor in the Departments of Physics and Molecular & Cellular Biology at the University of California, Berkeley.



**Erik Jorgensen** is an Investigator of the Howard Hughes Medical Institute and a Distinguished Professor in the Department of Biology at the University of Utah. His Ph.D. is in Genetics from the University of Washington, and he studied the genetics of GABA neurotransmission in the nematode, *C. elegans*, as a postdoctoral student at MIT. Jorgensen's lab has developed a number of novel techniques, including methods for electrophysiological recording from neuromuscular junctions and genome manipulation in *C. elegans*. New methods in microscopy include a method to correlate super-resolution fluorescence microscopy with electron microscopy, and a method to capture rapid cellular events for ultrastructural studies, called flash-and-freeze electron microscopy.

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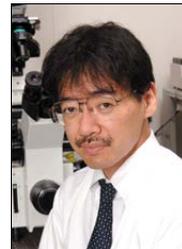
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**Philipp Keller** is a Group Leader at the Howard Hughes Medical Institute, Janelia Research Campus. His interdisciplinary lab consists of optical physicists, computer scientists and biologists who collaborate to advance light microscopy and study development and function of the nervous system. Keller studied physics and computer science at the University of Karlsruhe and Heidelberg University, where he developed high-resolution light-sheet imaging techniques for the cellular cytoskeleton and modeled yeast spore formation. His Ph.D. is in biology from the European Molecular Biology Laboratory (EMBL) where he developed scanned light-sheet microscopy and systematically reconstructed early zebrafish development at the single-cell level.



**Jennifer Lippincott-Schwartz** received her Ph.D from Johns Hopkins University, did post-doctoral training at the National Institutes of Health (NIH), and served as Chief of the Section on Organelle Biology at NICHD, NIH before becoming a Group Leader at HHMI's Janelia Farm Research Campus in 2016. Her lab has pioneered the use of green fluorescent protein (GFP) technology for quantitative imaging, including creating the photoactivatable GFP and co-developing the superresolution imaging technique of photoactivated localization microscopy. Her findings have fundamentally reshaped ideas about the spatio-temporal behavior and dynamic interactions of molecules and organelles inside cells and embryos.



**Atsushi Miyawaki** is a Senior Team Leader and Vice Director at the RIKEN Brain Science Institute. He launched and leads RIKEN Center for Advanced Photonics laboratory and the Laboratory for Cell Function Dynamics, also at RIKEN. Miyawaki received his M.D. at Keio University School of Medicine and his Ph.D. in signal transduction at Osaka University School of Medicine. He has served as a researcher and an assistant professor at the Institute of Medical Science, University of Tokyo, and Miyawaki was an HFSP long-term fellow and research pharmacologist in the Department of Pharmacology at the UC San Diego, where he worked on technological innovations in fluorescence imaging.



**Alipasha Vaziri** is the Associate Director of the Kavli Neuronal Systems Institute, and serves as an Associate Professor at The Rockefeller University where he studies how large-scale dynamics of neuronal networks are related to brain functions and behavior. To do so, he develops new high-speed optical techniques that push the boundaries on spatial and temporal resolution, as well as volume size and depth for recording dynamic interactions of neuronal populations in awake behaving animals. He holds a Ph.D. in Physics from the University of Vienna, completed postdoctoral training at the National Institute of Standards and Technology and the University of Maryland. He subsequently worked as a research scientist at HHMI Janelia Research Campus.