

Sunday, September 28th

- 3:00 pm Check-in
- 6:00 pm Reception (*Lobby*)
- 7:00 pm Dinner
- 8:00 pm Science Speed Dating! (*Lobby*)
- 9:30 pm Refreshments available at Bob's Pub

NOTE:

Meals are in the **Dining Room**

Talks are in the **Auditorium**

Posters are in the **Lobby**

Monday, September 29th

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 1: Fluorescent Proteins I**
Chair: Daria Shcherbakova
- 9:00 am **Michael Z. Lin**, Stanford University
Developing new input and output interfaces to biology with fluorescent proteins
- 9:20 am **Nathan C. Shaner**, Scintillon Institute
Lancelet-derived monomeric fluorescent proteins: Structure and engineering
- 9:40 am **Amy E. Palmer**, University of Colorado at Boulder
Microfluidics-based screening of fluorescent protein photophysical properties
- 10:00 am **Thomas E. Hughes**, Montana State University
A 2-photon Bazooka for selecting and evolving better 2 photon fluorescent proteins and probes
- 10:20 am Break
- 10:50 am Session 2: Fluorescent Proteins II**
Chair: Maarten Merkx
- 10:50 am **Atsushi Miyawaki**, RIKEN Brain Science Institute
A bilirubin-inducible fluorescent protein from eel muscle
- 11:10 am **Vladislav Verkhusha**, Albert Einstein College of Medicine
Engineering of bacterial phytochromes for near-infrared imaging, sensing and light-control in mammals
- 11:30 am **Samie Jaffrey**, Weill Cornell Medical College, Cornell University
Imaging RNA and intracellular metabolites using RNA mimics of green fluorescent protein
- 11:50 am **Takeharu Nagai**, Osaka University
Expanded palette of bright luminescent proteins for real-time multi-color luminescence imaging
- 12:10 pm Lunch (*service ends at 1pm*)

- 2:00 pm** **Session 3: Fluorescent Proteins III**
Chair: Benjamien Moeyaert
- 2:00 pm **Stefan Jakobs**, Max Planck Institute for Biophysical Chemistry
Reversibly photoswitchable fluorescent proteins
- 2:20 pm **Benjamien Moeyaert**, KU Leuven
A green-to-red photoconvertible Dronpa mutant for multimodal superresolution fluorescence microscopy
- 2:40 pm **Jin Zhang**, Johns Hopkins University School of Medicine
Fluorescent biosensors for superresolution activity imaging in living cells
- 3:00 pm **Catherine Galbraith**, Oregon Health & Science University
Functional linkages between single-molecule dynamics and local cell activity
- 3:20 pm Break
- 3:50 pm** **Session 4: Integrators / Chemistry**
Chair: Shigenori Inagaki
- 3:50 pm **Eric R. Schreiter**, Janelia Farm Research Campus/HHMI
Permanent in vivo marking of active neurons with a genetically encoded calcium integrator, CaMPARI
- 4:10 pm **Luke D. Lavis**, Janelia Farm Research Campus/HHMI
Hip to be square: Using azetidines to build brighter dyes
- 4:30 pm **Kai Johnsson**, EPFL Lausanne
New fluorescent probes and sensors
- 4:50 pm Poster Reception
- 6:30 pm Dinner
- 7:45 pm** **Group Discussion (Moderators: Atsushi Miyawaki and Jin Zhang)**
- 8:45 pm Refreshments available at Bob's Pub

Tuesday, September 30th

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 5: Calcium Indicators I**
Chair: Hideaki Mizuno
- 9:00 am **Robert E. Campbell**, University of Alberta
The bottomless barrel of fluorescent protein-based tools
- 9:20 am **Jenny Yang**, Georgia State University
Designing calcium sensors with fast kinetics
- 9:40 am **Oliver Griesbeck**, Max Plank Institute of Neurobiology
Optimized ratiometric calcium sensors for in vivo imaging of neurons and lymphocytes
- 10:00 am **Samuel S.-H. Wang**, Princeton University
Kinetic and dynamic limits on calcium indicator protein performance
- 10:20 am Break
- 10:50 am Session 6: Calcium Indicators II**
Chair: Florence Reddish
- 10:50 am **Doug Kim**, Janelia Farm Research Campus/HHMI
Optimizing red GECIs for imaging neural activity
- 11:10 am **Takashi Sato**, University of Tübingen
Application of GCaMP6 to in vivo calcium imaging
- 11:30 am **Hajime Fujii**, University of Tokyo
Nonlinear decoding and asymmetric representation of neuronal input information by CaMKII α and calcineurin
- 11:45 am **Chris Xu**, Cornell University
In vivo multiphoton imaging of mouse brain
- 12:05 pm Group Discussion (Moderator: Robert Campbell)**
- 12:45 pm Lunch (*service ends at 1:15 pm*)
- 1:30 pm Tour (*optional – meet at reception*)

- 2:15 pm** **Session 7: Imaging**
Chair: Maria Bagonis
- 2:15 pm **Dong Li**, Janelia Farm Research Campus/HHMI
Live cell structured illumination microscopy with enhanced resolution
- 2:35 pm **Lingjie Kong**, Janelia Farm Research Campus/HHMI
High-speed volumetric imaging of neuronal network activity in awake mice
- 2:55 pm **Michael Levene**, Yale University
New windows onto the brain: Using simple glass structures to see deeper
- 3:15 pm **Philipp J. Keller**, Janelia Farm Research Campus/HHMI
Reconstructing development and function of the nervous system using light-sheet microscopy
- 3:35 pm Break
- 4:00 pm** **Session 8: Biosensors I**
Chair: Maria Kamper
- 4:00 pm **Ryohei Yasuda**, Max Planck Florida Institute
Imaging signal transduction in single dendritic spines
- 4:20 pm **Robert Feil**, University of Tübingen
cGMP imaging in mice
- 4:40 pm **Yingxiao Wang**, University of California, San Diego
Developing FRET biosensors by directed evolution for single cell imaging
- 5:00 pm** **Group Discussion (Moderator: Ryohei Yasuda)**
- 5:30 pm Poster Reception
- 7:00 pm Dinner
- 8:15 pm** **Session 9: Biosensors II**
Chair: Fantashia Goolsby
- 8:15 pm **Loren Looger**, Janelia Farm Research Campus/HHMI
New sensors and fluorescent proteins
- 8:35 pm **Gary Yellen**, Harvard Medical School
Lifetime imaging of metabolic sensors in brain

Fluorescent Proteins and Biological Sensors IV

- 8:55 pm **Bianxiao Cui**, Stanford University
Light-mediated ERK and AKT signaling pathways reveal the kinetic control in cell fate determinations
- 9:15 pm Refreshments available at Bob's pub

Wednesday, October 1st

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 10: Voltage Sensing I**
Chair: Darcy Peterka
- 9:00 am **Vincent A. Pieribone**, Yale School of Medicine/Pierce Laboratory
Optimizing voltage probe characteristics for in vivo use
- 9:20 am **Michael N. Nitabach**, Yale School of Medicine
Use of genetically encoded fluorescent sensors for analyzing synaptic networks
- 9:40 am **Mark J. Schnitzer**, HHMI/Stanford University
Imaging neural spiking in brain tissue using FRET-opsin protein voltage sensors
- 10:00 am **Thomas Knopfel**, Imperial College London
Genetically encoded voltage indicators: Performance in awake and transgenic mice
- 10:20 am Break
- 10:50 am Session 11: Voltage Sensing II**
Chair: Peng Zou
- 10:50 am **Evan Miller**, University of California, Berkeley
Improved PeT molecules for optically sensing voltage
- 11:10 am **Daniel Hochbaum**, Harvard University
Optopatch: All-optical electrophysiology using engineered microbial rhodopsins
- 11:30 am **Meyer Jackson**, University of Wisconsin, Madison
Imaging neural circuit activity and plasticity in hippocampal slices
- 11:50 am **Darcy Peterka**, Columbia University
Monitoring subthreshold voltages in spines and dendrites using fluorescent proteins, and recent advances with nanoparticle sensors
- 12:10 pm Closing Discussion (Moderator: Loren Looger)**
- 12:40 pm Conclusion of conference / Lunch (*service ends at 1:15pm*)
- 1:15 pm First Shuttle to Dulles
2:15 pm Second Shuttle to Dulles
3:15 pm Last Shuttle to Dulles