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)
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

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 azetidine 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 30**

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 CaMKIIα 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)*

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9/29/14
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*
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