Sunday, November 6

3:00 pm Check-in

6:00 pm Reception *(Lobby)*

7:00 pm Dinner

8:00 pm Welcome / Opening Remarks

8:05 pm A Celebration of Roger Tsien
Remarks by Atsushi Miyawaki (RIKEN) and Stephen Adams (UCSD)

9:05 pm Refreshments available at Bob's Pub

NOTE:
Meals are in the **Dining Room**
Talks are in the **Seminar Room**
Posters are in the **Lobby**

Monday, November 7

7:30 am Breakfast *(service ends at 8:45am)*

9:00 am **Session 1: Fluorescent Proteins I**
Chair: Andrew Chisholm

9:00 am **Nathan C. Shaner**, Scintillon Institute
Structure-guided design of improved fluorescent proteins

9:20 am **Erik L. Snapp**, Janelia Research Campus/HHMI
Unexpected properties of fluorescent proteins in cells

9:40 am **Thomas E. Hughes**, Montana State University
Optimizing fluorescent proteins and biosensors for 2 photon microscopy

10:00 am **Robert E. Campbell**, University of Alberta
Venturing into the red and beyond to discover the next generation of indicators

10:20 am Break

10:50 am **Session 2: Fluorescent Proteins II**
Chair: Elizabeth Unger

10:50 am **Stefan Jakobs**, Max Planck Institute for Biophysical Chemistry
Reversibly photoswitchable fluorescent proteins for live-cell super-resolution microscopy

11:10 am **Peter Dedecker**, Katholieke Universiteit Leuven
New photoswitchable fluorescent proteins and structural mechanisms of photoswitching

11:30 am **Gerd Ulrich Nienhaus**, Karlsruhe Institute of Technology
mGarnet2 - a far-red emitting fluorescent protein for STED microscopy

11:50 am **Vladislav Verkhusha**, Albert Einstein College of Medicine
Near-infrared optical probes engineered from bacterial phytochromes

12:10 pm **Erik A. Rodriguez**, University of California, San Diego
A far-red fluorescent protein evolved from a cyanobacterial phycobiliprotein

12:30 pm Lunch *(service ends at 1pm)*

2:00 pm **Session 3: Sensors I**
Chair: Amit Agarwal

2:00 pm **Gary Yellen**, Harvard Medical School
Dynamics of brain metabolism visualized in slice and in vivo by 2p-FLIM of metabolic biosensors

2:20 pm **Jin Zhang**, University of California, San Diego
New biosensors for dynamic signaling activities

2:40 pm **Ryohei Yasuda**, Max Planck Florida Institute for Neuroscience
Tools to study biochemical reaction in synapses

3:00 pm **Marcel Bruchez**, Carnegie Mellon University
FRET-based fluorogenic sensors for physiology in live cells and model organisms

3:20 pm Break

3:50 pm **Session 4: Sensors II**
Chair: Julius Zhu

3:50 pm **Amy E. Palmer**, University of Colorado at Boulder
Quantitative biology with genetically encoded sensors – opportunities and challenges

4:10 pm **Jennifer Lippincott-Schwartz**, Janelia Research Campus/HHMI
Emerging fluorescence technology to study the spatial and temporal dynamics of organelles

4:30 pm **Takeharu Nagai**, Osaka University
Five color variants of bright bioluminescent protein and Ca(2+) indicators for real-time multicolor bioimaging

4:50 pm **Luke Lavis**, Janelia Research Campus/HHMI
Overcoming the tyranny of the ribosome

5:10 pm **Group Discussion**

5:40 pm Poster Reception

7:15 pm Dinner

8:15 pm **Session 5: Genetically Encoded Calcium Indicators I**
Chair: Kimberly Beatty

8:15 pm **Katalin Torok**, St George's University London
Development of fast genetically-encoded calcium indicators for monitoring calcium flux

8:35 pm **Haruhiko Bito**, The University of Tokyo Graduate School of Medicine
Multiplex imaging of neural activity and signaling dynamics

8:55 pm **Douglas Kim**, Janelia Research Campus/HHMI
Optimizing red GECIs for imaging neural activity

9:15 pm Refreshments available at Bob's Pub

Tuesday, November 8

7:30 am Breakfast *(service ends at 8:45am)*

9:00 am **Session 6: Genetically Encoded Calcium Indicators II / Applications I**
Chair: Joel Kralj

9:00 am **Osamu Sadakane**, RIKEN Brain Science Institute
Two-photon calcium imaging using genetically-encoded calcium indicator in primate brain

9:20 am **Eric R. Schreiter**, Janelia Research Campus/HHMI
Permanent marking and selective manipulation of active neurons

9:40 am **Tim Murphy**, University of British Columbia
Automated functional, mesoscopic cortical imaging, self-initiated by GCaMP6 transgenic mice in their home-cage

10:00 am **Spencer L. Smith**, University of North Carolina School of Medicine
Multiphoton imaging systems for capturing fast dynamics across large volumes

10:20 am Break

11:00 am **Session 7: Synaptic Imaging**
Chair: Tal Laviv

11:00 am **Yulong Li**, Peking University
Spying neurotransmitter release by new genetically-encoded indicators

11:20 am **Lin Tian**, University of California, Davis
Genetically encoded indicators for probing synaptic transmission

11:40 am **Akiko Hayashi-Takagi**, Gunma University
Mapping of Hebbian synaptic potentiation using synaptic optoprobes

12:00 pm **Jonathan Marvin**, Janelia Research Campus/HHMI
Sensors for tracking neurotransmitter release in living animals

12:20 pm Lunch *(service ends at 1pm)*

1:00 pm Tour *(optional – meet at reception)*

2:00 pm **Session 8: Applications II**
Chair: Saumya Saurabh

2:00 pm **Atsushi Miyawaki**, RIKEN Brain Science Institute
Fluorescent protein-based probes and hardware/software functions

2:20 pm **Michelle Baird**, National Institutes of Health
Local pulsatile contractions are an intrinsic property of the myosin 2A motor in the cortex of adherent cell

2:40 pm **Itaru Hamachi**, Kyoto University
Chemical method for labeling and imaging endogenous proteins in live cells

3:00 pm Break

3:30 pm **Session 9: Applications III**
Chair: Stephen Adams

3:30 pm **Philipp J. Keller**, Janelia Research Campus/HHMI
Whole-animal imaging with high spatio-temporal resolution

3:50 pm **Darcy S. Peterka**, Columbia University
Controlling light, flexibly

4:10 pm **Na Ji**, Janelia Research Campus/HHMI
Video-rate volumetric functional imaging of the brain at synaptic resolution

4:30 pm **Michael Z. Lin**, Stanford University
Coloring outside the lines with fluorescent proteins: Engineering new applications

4:50 pm **Group Discussion**

5:30 pm Poster Reception

7:00 pm Dinner

8:00 pm **Session 10: Permanent Marking**
Chair: Konstantin Lukyanov

8:00 pm **Alice Ting**, Stanford University
Directed evolution of molecular probes for cell biology and neuroscience

8:20 pm **Jason N. D. Kerr**, Research Center Caesar
Spike detection with biophysical models for GCaMP6 and other multivalent calcium indicator proteins

8:40 pm **Hyungbae Kwon**, Max Planck Florida Institute for Neuroscience
Optogenetic toolkit to label learning-specific neural circuits

9:00 pm **Mark H. Ellisman**, University of California, San Diego
Marking cells, organelles and macromolecules for correlated x-ray, LM and EM

9:20 pm Refreshments available at Bob's Pub

Wednesday, November 9

7:30 am Breakfast *(service ends at 8:45am)*

9:00 am **Session 11: Voltage sensing I**
Chair: Loren Looger

9:00 am **Adam Cohen**, HHMI/Harvard University
Optical electrophysiology in intact tissue

9:20 am **Thomas Knöpfel**, Imperial College London
Genetically encoded voltage indicator imaging of GABAergic cell classes in the mouse brain

9:40 am **Mark Schnitzer**, HHMI/Stanford University
Imaging neural action potentials in awake mice and flies with sub-millisecond temporal resolution

10:00 am **Vincent A. Pieribone**, Yale School of Medicine/Pierce Laboratory
Engineering improved voltage indicators

10:20 am **Bradley Baker**, Korea Institute of Science and Technology
The mechanism of voltage-induced fluorescence change inspires ratiometric genetically encoded voltage indicators

10:40 am Break

11:00 am **Session 12: Voltage sensing II**
Chair: Luke Lavis

11:00 am **Srdan Antic**, University of Connecticut
The best applications for genetically-encoded voltage sensors and intracellular voltage-sensitive dyes with currently available methods

11:20 am **Allison Walker**, University of California, Berkeley
The development and application of PeT-based voltage sensitive dyes to study neuronal activity

11:40 am **Meyer Jackson**, University of Wisconsin, Madison
hVOS Imaging of Voltage in Axons and Cre-Targeted Neurons

12:00 pm **Group Discussion**

12:30 pm Lunch and Departure

1:00 pm First shuttle to Dulles
2:00 pm Second shuttle to Dulles
3:00 pm Last shuttle to Dulles