

Sunday, April 30

- 3:00 pm Check-in
- 5:25 pm Welcome & Opening Remarks (Organizers)**
- 5:30 pm Keynote: Eve Marder, Brandeis University**
Electrical coupling, parallel pathways and complicating connectomes
- 6:15 pm Reception (*Lobby*)
- 7:15 pm Dinner (*See table assignments in the Dining Room!*)
- 8:15 pm Attendee Introductions (*Dining Room*)**
Each person gives a 30-45 second introduction of themselves to the group
- 9:15 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, May 1**Talks are 17 minutes + 8 minutes for Q&A**

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 1: Methods to study networks formed by electrical synapses I**
Chair: Marla Feller
- 9:00 am **James Nagy**, University of Manitoba
Electrical synapses in the mammalian CNS: How did we get here and where are we?
- 9:25 am **Stephen Massey**, University of Texas Health Science Center
Rod/cone coupling is a major pathway in the mouse photoreceptor network
- 9:50 am **Luke Lavis**, Janelia Research Campus/HHMI
Nine years of failure: Exploring chemical biology approaches for visualizing gap junction connectivity
- 10:15 am Break
- 10:45 am Session 2: Methods to study networks formed by electrical synapses II**
Chair: Roger Traub
- 10:45 am **Atsunori Oshima**, Nagoya University
Cryo-EM structure of an innexin gap junction channel at atomic resolution
- 11:10 am **Yosef Yarom**, Hebrew University of Jerusalem
Reconstructing electrically coupled network
- 11:35 am Lunch (*service ends at 1pm*)
- 1:00 pm Session 3: Modulation and plasticity I**
Chair: Adam Miller
- 1:00 pm **Espen Hartveit**, University of Bergen
Fast and dynamic regulation of electrical synapses in the mammalian retina
- 1:15 pm **Margaret Veruki**, University of Bergen
The modulation of Cx36 electrical synapses between retinal AII amacrine cells is mediated by extrasynaptic GluN2B-containing NMDA receptors
- 1:30 pm **Alberto Pereda**, Albert Einstein College of Medicine
Plasticity of electrical transmission at first order auditory synapses
- 1:55 pm **Julie Haas**, Lehigh University
Plasticity of electrical synapses: A theme and variations
- 2:20 pm Break

- 2:50 pm** **Session 4: Modulation and plasticity II**
Chair: Stephen Massey
- 2:50 pm **Carole Landisman**, Seattle Children's Research Institute
The potential interplay of gap junctions and behavioral state
- 3:15 pm **John O'Brien**, University of Texas Health Science Center at Houston
Structural and functional plasticity of Cx36 gap junctions dependent on the actin cytoskeleton
- 3:40 pm **John Welsh**, University of Washington
Implications of electrical synapse plasticity in the inferior olive
- 4:05 pm **Georg R. Zoidl**, York University
Ménage à trois: Dissecting the roles of connexin 36, calmodulin and calcium/calmodulin-dependent kinase II in the plasticity of electrical synapses
- 4:30 pm Break
- 5:00 pm** **Session 5: Electrical synapses and inhibitory interneurons**
Chair: John Rash
- 5:00 pm **Michael Hausser**, University College London
Electrical coupling between interneurons in vivo
- 5:25 pm **Barry Connors**, Brown University
Thalamus: A case study of the development, functions, and pathology of electrical synapses
- 5:50 pm Poster Reception
- 7:30 pm Dinner
- 8:30 pm Refreshments available at Bob's Pub

Tuesday, May 2**Talks are 17 minutes + 8 minutes for Q&A**

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 6: Interactions with synaptic circuits**
Chair: Alberto Pereda
- 9:00 am **Larry Trussell**, Oregon Health & Science University
Electrical synapses in auditory processing
- 9:25 am **Abdel El Manira**, Karolinska Institutet
Retrograde influence of motor neurons via electrical synapses
- 9:50 am **Lidia Szczupak**, University of Buenos Aires
Chemical and electrical synapses in recurrent inhibitory circuits that control motor output
- 10:15 am **Christophe P. Ribelayga**, University of Texas Medical School at Houston
A quantitative analysis of electrical coupling between photoreceptors in mouse retina
- 10:40 am Break
- 11:10 am Session 7: Biophysics / Computation I**
Chair: Margaret Veruki
- 11:10 am **Angus Silver**, University College London
Electrical signaling between Golgi cells
- 11:35 am **Timothy Lewis**, University of California, Davis
What can electrical coupling do? Examples of how electrical coupling can influence activity in model neuronal networks
- 12:00 pm Lunch (*service ends at 1pm*)
- 1:00 pm Tour (*optional – meet at reception*)
- 2:00 pm Session 8: Biophysics / Computation II**
Chair: John Welsh
- 2:00 pm **Zhao-Wen Wang**, University of Connecticut Health Center
Antidromic-rectifying gap junctions amplify chemical transmission between neurons with mixed transmission modalities
- 2:25 pm **Roger Traub**, IBM TJ Watson Research Center
Axonal gap junctions and very fast network oscillations

- 2:50 pm **Nicolas Palacios-Prado**, Pontificia Universidad Catolica de Chile
Regulation of functional properties of electrical synapses and their role in synchronization of neuronal networks
- 3:15 pm Break
- 3:45 pm Session 9: Neuronal/glia connections**
Chair: Julie Haas
- 3:45 pm **John Rash**, Colorado State University
Connexin-29/Kv1 "xenotypic" channels define axo-myelinic electrical synapses in mammals: Replacing the frog model for saltatory conduction
- 4:10 pm **David Spray**, Albert Einstein College of Medicine
Homotypic and heterotypic electrical coupling between neurons and glial cells within sensory ganglia
- 4:35 pm **Nelson Spruston**, Janelia Research Campus/HHMI
The role of astrocytes in regulating the firing of NPY interneurons
- 5:00 pm **Michael Bennett**, Albert Einstein College of Medicine
First principles last
- 5:25 pm Poster Reception
- 7:00 pm Dinner
- 8:00 pm Refreshments available at Bob's Pub

Wednesday, May 3**Talks are 17 minutes + 8 minutes for Q&A**

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 10: Development**
Chair: Nelson Spruston
- 9:00 am **Eduardo Macagno**, University of California, San Diego
Development and plasticity of electrical junctions in the medicinal leech
- 9:25 am **Marla Feller**, University of California, Berkeley
Activity-Dependent modulation of gap junction circuits in developing retina
- 9:50 am **Adam Miller**, University of Oregon
Molecular mechanisms of electrical synapse formation
- 10:15 am **Songhai Shi**, Memorial Sloan Kettering Cancer Center
Preferential coupling of clonally labeled neocortical interneurons in clusters influences precise inhibitory microcircuit assembly
- 10:40 am Break
- 11:10 am Session 11: Disease**
Chair: Barry Connors
- 11:10 am **Stewart Bloomfield**, State University of New York College of Optometry
Roles of gap junctions in retinal physiology and pathology
- 11:35 am **Andrei Belousov**, University of Kansas Medical Center
Complex contributions of neuronal gap junctions to cell death and survival
- 12:00 pm Closing Discussion / Final Remarks**
- 12:30 pm Lunch and/or Departure
- 1:00 pm First shuttle to Dulles
2:00 pm Second shuttle to Dulles
3:00 pm Last shuttle to Dulles