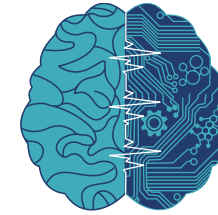


WE WOULD LIKE TO ACKNOWLEDGE THE GENEROUS SUPPORT OF:
ARMY RESEARCH OFFICE – MULTIDISCIPLINARY UNIVERSITY RESEARCH INITIATIVE
(ARO – MURI)



NEURO TECHNOLOGY CENTER
— @COLUMBIA UNIVERSITY —

5th Annual Symposium
Neurotechnology Center at Columbia University
Sponsored by the Army Research Office, MURI Program

DENDRITIC COMPUTATION

May 22, 2018

550 W120th St.
Rm. 501 North West Corner Building
New York, NY 10027

8:00 – 8:30am *Breakfast (6th Floor Atrium, NWC)*

8:30 – 8:35am **Rafael Yuste**, Columbia
NTC Welcome

8:35 – 8:45am **Fred Gregory**, ARO
MURI Program Welcome

8:45 – 9:30am **Keynote: Dan Johnston**, UT Austin
Dendritic Computation: Past and Present

Session I: Structure and Cell Biology Moderator: Rafael Yuste

9:30 – 10:00am **Ozgur Sahin**, Columbia
Nanomechanical characteristics of synapses in hippocampal neurons

10:00 – 10:30pm **Valentin Nagerl**, Bordeaux
Super-resolution shadow imaging of brain structure and extracellular space

10:30 – 10:45pm *Coffee Break (5th Floor Mezzanine, NWC)*

10:45 – 11:15am **Jeff Lichtman**, Harvard
The structure of dendritic computation in thalamus

11:15 – 11:45am **Rick Huganir**, JHU
Imaging dynamic AMPA receptor trafficking *in vitro* and *in vivo*

11:45 – 12:15pm **Yi Zuo**, UC Santa Cruz
Experiences induce clustered spine dynamics

12:15 – 12:45pm **Adriane Otopalik**, Brandeis
Generating reliable physiology from variable neuronal morphologies

12:45 – 1:00pm **Roberto Etchenique**, Buenos Aires
Ruthenium-Bipyridine (RuBi), a chemical platform for neurotransmitter photodelivery

1:00 – 2:00pm *Lunch (6th Floor Atrium, NWC)*
Please feel free to use the picnic tables outside the 4th floor of the NWC building for additional seating, weather permitting

OPTIONAL:

1:15 – 2:00pm *Guided tours of NTC Labs (7th and 9th floors of NWC)*

Session II: Biophysics and Physiology Moderator: Dan Johnston

2:00 – 2:30pm **Rafael Yuste**, Columbia
Electrical compartmentalization of dendritic spines

2:30 – 3:00pm **Mark Harnett**, MIT
Enhanced Electrical Compartmentalization in Human Cortical Pyramidal Neuron Dendrites

3:00 – 3:30pm **David Holcman**, ENS
Electrical properties of dendritic spines revealed by electro-diffusion

3:30 – 3:45pm **William Ross**, NYMC
Sodium imaging suggests that there is little regenerative component to the response of single spines to simple synaptic events

3:45 – 4:00pm *Coffee Break (5th Floor Mezzanine, NWC)*

4:00 – 4:30pm **Arthur Konnerth**, TU Munich
Dendritic computation underlying orientation tuning in layer 4 neurons of the visual cortex

4:30 – 5:00pm **Yiota Poirazi**, IMBB
Non-linear dendrites turn FS interneurons into 2-stage artificial neural networks

5:00 – 5:15pm **Erin Barnhart**, NYU
Sequential non-linear filtering of local motion cues enables selective coding of global motion

5:15 – 5:45pm **Fabrizio Gabbiani**, Baylor
Dendritic computations implementing selectivity to coherently expanding visual stimuli for collision detection

5:45 – 6:00pm **Dan Johnston and Rafael Yuste**
Dendritic Computation: Open Questions

6:00 – 8:00pm *Reception and Poster Session (6th Floor Atrium, NWC)*