

Neuronal Ensembles

Wednesday, May 5th, 2021

Hosted by the NeuroTechnology Center at Columbia University and the Norwegian University of Science and Technology in collaboration with the Kavli Foundation

Organized by Rafael Yuste and Emre Yaksi

US Eastern Time European Time
EDT (UTC -4) CEDT (UTC +2)

Introduction

09:00 – 09:05 AM	15:00 – 15:05	Rafael Yuste (Kavli Institute for Brain Science) and Emre Yaksi (Kavli Institute for Systems Neuroscience) <i>Introductory Remarks</i>
09:05 – 09:15 AM	15:05 – 15:15	John Hopfield (Princeton University) <i>Metaphor</i>
09:15 – 09:50 AM	15:15 – 15:50	Moshe Abeles (Bar Ilan University) <i>Opening Keynote</i>

Session 1

Development (Moderated by Rafael Yuste)

09:50 – 10:20 AM	15:50 – 16:20	Rosa Cossart (Inmed, France) <i>From cortical ensembles to hippocampal assemblies</i>
10:20 – 10:50 AM	16:20 – 16:50	Emre Yaksi (Kavli Institute for Systems Neuroscience) <i>Function and development of habenular circuits in zebrafish brain</i>
10:50 – 11:00 AM	16:50 – 17:00	<i>Break</i>

Session 2

Sensory/Motor to Higher Order Computations (Moderated by Emre Yaksi)

11:00 – 11:30 AM	17:00 – 17:30	Edvard Moser (Kavli Institute for Systems Neuroscience) <i>Network dynamics of entorhinal grid cells</i>
11:30 – 12:00 PM	17:30 – 18:00	Gilles Laurent (Max Planck) <i>Non-REM and REM sleep: mechanisms, dynamics, and evolution</i>
12:00 – 12:30 PM	18:00 – 18:30	György Buzsáki (New York University) <i>Neuronal Ensembles: a reader-dependent viewpoint</i>
12:30 – 12:45 PM	18:30 – 18:45	<i>Break</i>

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Session 3

Optogenetics (Moderated by Emre Yaksi)

12:45 – 01:15 PM	18:45 – 19:15	Rafael Yuste (Kavli Institute for Brain Science) <i>Playing the piano with neural circuits: control of visual behavior by holographic activation of neuronal ensembles</i>
01:15 – 01:45 PM	19:15 – 19:45	Michael Hausser (University College London) <i>Forging causal links between neural circuit activity and behavior</i>
01:45 – 02:15 PM	19:45 – 20:15	Karl Deisseroth (Stanford University) <i>Inner workings of channel rhodopsins and brains</i>
02:15 – 02:30 PM	20:15 – 20:30	<i>Break</i>

Session 4

Computation Properties (Moderated by Rafael Yuste)

02:30 – 03:00 PM	20:30 – 21:00	Kanaka Rajan (Mount Sinai) <i>How brain circuits function in health and disease: understanding brain-wide current flow</i>
03:00 – 03:30 PM	21:00 – 21:30	Ila Fiete (MIT) <i>Structure, scaffolds, and fragmentation in the place cell cognitive map</i>
03:30 – 04:00 PM	21:30 – 22:00	Larry Abbott (Kavli Institute for Brain Science) <i>Vector computations in the fly brain</i>