

NeuroFutures 2016

Circuit Structure & Dynamics

June 19-21, 2016

Allen Institute
615 Westlake Avenue N
Seattle, WA 98109

Co-hosted by:



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Sunday, June 19

5:30-6:30pm	Anne Churchland , <i>Cold Spring Harbor Laboratory</i> Public lecture: "How brains combine multiple pieces of information to guide decision-making"
6:30-7:30pm	NeuroFutures 2026: How will technology transform our ability to understand the 2026 brain? Keynote panel and Q&A: Linda Buck, Anne Churchland, Tim Denison, Afonso Silva

Monday, June 20

7:15-8:00am	Registration and continental breakfast
8:00-8:15am	Welcome and introductory remarks - NeuroFutures committee
8:15-9:15am	Linda Buck , <i>Fred Hutchinson Cancer Research Center, 2004 Nobel Laureate in Physiology or Medicine</i> Opening keynote: "Deconstructing smell"
9:15-9:30am	Morning break
9:30-11:30am	Novel imaging approaches: live awake monitoring of circuits <ul style="list-style-type: none">• Tim Murphy, <i>University of British Columbia</i>, "High throughout imaging of mouse mesoscopic activity in health and disease"• Saskia de Vries, <i>Allen Institute for Brain Science</i>, "Mapping activity in the visual cortex of the awake mouse"• Larry Zweifel, <i>University of Washington</i>, "Molecular and circuit mechanisms regulating GABAergic control of the ventral midbrain"• Patricia Kuhl, <i>University of Washington</i>, "Imaging the baby brain: imagine a future of improved learning for all children"
11:30am-12:30pm	Lunch
12:30-1:30pm	Liqun Luo , <i>Stanford University</i> Afternoon keynote: "Organization and Assembly of Neural Circuits"
1:30-3:30pm	Human and non-human primate circuit function <ul style="list-style-type: none">• Jeff Ojemann, <i>University of Washington</i>, "Motor reorganization with brain computer interface use"• Beth Buffalo, <i>University of Washington</i>, "Using virtual reality in monkeys to probe hippocampal circuitry and the cognitive map"• Verginia Cuzon-Carlson, <i>Oregon Health & Science University</i>, "Elucidating brain circuitry underlying behavior in non-human primates using DREADDs"• Jonathan Ting, <i>Allen Institute for Brain Science</i>, "New horizons for the functional analysis of human neocortical cell types and microcircuits"
3:30-3:45pm	Afternoon break

Monday, June 20

3:45-5:45pm	Circuits in neurodegeneration <ul style="list-style-type: none">• Craig Brown, <i>University of Victoria</i>, "Chronic optogenetic stimulation of thalamocortical projections enhances sensory circuit rewiring and recovery of sensori-motor function after stroke"• Chet Moritz, <i>University of Washington</i>, "Neuroprosthetic strategies to improve function after brain and spinal cord injury"• Julie Harris, <i>Allen Institute for Brain Science</i>, "Mapping whole brain connectivity to investigate Alzheimer pathologies in mouse models"• Steve Monteith, <i>Swedish Medical Center</i>, "Current and future intracranial applications of MR Guided Focused Ultrasound"
5:45-7:00pm	Poster session and happy hour reception

Tuesday, June 21

7:30-8:00am	Registration and continental breakfast
8:00-9:00am	Afonso Silva , <i>National Institute of Neurological Disorders and Stroke</i> Morning keynote: "Multimodal neuroimaging of brain anatomy and function in awake marmosets"
9:00-11:00am	Imaging and manipulating non-mammalian model circuits <ul style="list-style-type: none">• Marc Freeman, <i>Vollum Institute, Oregon Health and Science University</i>, "Brain circuits—not just for neurons anymore"• Rachel Wong, <i>University of Washington</i>, "Circuit reassembly in the regenerating zebrafish retina"• Michael Gordon, <i>University of British Columbia</i>, "Starvation-dependent depotentiation of bitter taste in <i>Drosophila</i>"• Claudio Mello, <i>Oregon Health & Science University</i>, "The neural and genetic basis of vocal learning in songbirds"
11:00-11:15am	Morning break
11:15am-12:45pm	Computational modeling of circuits <ul style="list-style-type: none">• Rajesh Rao, <i>University of Washington</i>, "Bayesian brain models: from circuit structure to function"• Bingni Brunton, <i>University of Washington</i>, "Data-intensive approaches to understanding neural computations underlying naturalistic behaviors"• Costas Anastassiou and Stefan Mihalas, <i>Allen Institute for Brain Science</i>, "Neuronal modeling and computation at the Allen Institute"
12:45-2:00pm	Lunch, posters and informal discussion
2:00-3:00pm	David Linde , <i>Medtronic</i> Afternoon keynote: "From observatories to starshots: scientific instrumentation strategies for neuroscience"
3:00-3:15pm	Afternoon break
3:15-5:15pm	Manipulation of circuits in disease <ul style="list-style-type: none">• Stephanie Borgland, <i>University of Calgary</i>, "Projection target defined effects of orexin and dynorphin on VTA dopamine neurons"• Jeremy Seamans, <i>University of British Columbia</i>, "The dynamic encoding properties of medial frontal cortex neurons and ensembles"• John Neumaier, <i>University of Washington</i>, "DREADDing the lateral habenula"• Roy Katso, <i>GlaxoSmithKline</i>, "Bioelectronics: the journey & opportunity for a transformative treatment paradigm"
5:15-5:30pm	Final wrap-up and poster awards, NeuroFutures committee