

Oral Program

Sunday, September 30, 2018

14:30-16:30 **Registration and Refreshment Break | Jubileumzaal Foyer**

16:30-18:15 Session 1 | Promotiezaal

16:30-16:45 **Welcome and Introduction | Promotiezaal**

16:45-17:15 **[INV01] Brain computer interfaces: Progress and challenges**

John Donoghue, *Wyss Center for Bio and Neuroengineering, Switzerland*

17:15-17:45 **[INV02] Kilohertz frame-rate two-photon tomography**

Kaspar Podgorski, *Janelia Research Campus, USA*

17:45-18:00 **[ST01] Cortex wide cellular resolution neural interfacing via digitally generated transparent polymer skulls**

L. Ghanbari¹, R.E. Carter¹, M.R. Rynes¹, J. Dominguez¹, N. Mossazghi¹, J. Jia Hu¹, A. Naik¹, T.J. Ebner¹, S.B. Kodandaramaiah^{*1}, ¹University of Minnesota, USA

18:00-18:15 **[ST02] Customizable, 3D-printed, thousand-channel probes for neural recording and photostimulation**

M.A. Nicholas, M.S. Saleh, A.T. Nicholas, R. Panat, E.A. Yttri^{*}, *Carnegie Mellon University, USA*

18:15-19:15 **Welcome Drinks Reception | Jubileumzaal**

Monday, October 01, 2018

08:30-09:00 **Breakfast | Jubileumzaal**

09:00-12:30 Session 2 | Promotiezaal

09:00-09:30 **[INV03] Recent developments in the neural dust platform: StimDust, a 2 mm³ ultrasonically powered stimulator**

Michel Maharbiz, *University of California, Berkeley, USA*

09:30-10:00 **[INV04] Circuit analysis by single neuron, single spike resolution methods**

György Buzsáki, *New York University, USA*

10:00-10:30 **[INV05] Illuminating neural circuits: From molecules to MRI for precision brain health**

Jin Hyung Lee, *Stanford University, USA*

10:30-11:00 **Refreshment Break | Jubileumzaal**

11:00-11:30 **[INV06] A quantitative framework for locomotor coordination and learning in mice**

Megan Carey, *Champalimaud Research, Portugal*

11:30-12:00 **[INV07] Functional micro-architecture for shape and color in primate primary visual cortex**

Edward Callaway, *The Salk Institute for Biological Studies, USA*

12:00-12:15 **[ST03]**

Engineering functional brain connectivity patterns by high-speed whole-brain imaging and neuromodulator polytherapy

M.F. Yanik^{*1,2}, M. Rezaie^{1,2}, P. Eimon², Y. Wu², ¹ETH Zurich, Switzerland, ²MIT Cambridge, USA

12:15-12:30 **Poster Blitz**

12:30-13:30 **Lunch | Jubileumzaal**

13:30-14:30 **Poster Session 1 | Jubileumzaal**

14:30-17:30 Session 3 | Promotiezaal

14:30-15:00 **[INV08] Neurotransmitter sensing via aptamer-field-effect transistors**



Cell-NERF Symposium:

Neurotechnologies

September 30 – October 2, 2018 – Leuven, Belgium

Anne Andrews, *University of California Los Angeles, USA*

15:00-15:15	[ST04] CMOS technology for three-dimensional neural recording using microwire arrays A. Obaid, Y.W. Wu, M. Hanna, J. Ding, N. Melosh*, <i>Stanford University, USA</i>
15:15-15:30	[ST05] Cell type-specific optical recording and electrical stimulation in a mouse model of subthalamic nucleus deep brain stimulation for Parkinson's disease J. Schor*, A. Nelson, <i>UC San Francisco, USA</i>
15:30-16:00	[INV09] Soft, biocompatible optoelectronic neural interfaces John Rogers, <i>University of Illinois, USA</i>
16:00-16:30	Refreshment Break Jubileumzaal
16:30-17:15	Panel discussion
17:30-19:00	Walking Tour
19:00-22:00	Meet the Speakers Dinner Faculty Club (ticket holders only)
Tuesday, October 02, 2018	
08:30-09:00	Breakfast Jubileumzaal
09:00-12:30	Session 4 Promotiezaal
09:00-09:30	[INV10] From photon to pipette: Optical and electrophysiological tools for studying intact neural circuits Simon Schultz, <i>Imperial College London, UK</i>
09:30-10:00	[INV11] Faster and gentler optical nanoscopy for brain cell imaging Ilaria Testa, <i>KTH Royal Institute of Technology, Sweden</i>
10:00-10:30	[INV12] Molecular connectomics: Present and future Alex Vaughan, <i>Cold Spring Harbor Laboratory, USA</i>
10:30-11:00	Refreshment Break Jubileumzaal
11:00-11:30	[INV13] Flexible multielectrode arrays as implantable interfaces to the central and peripheral nervous system Thomas Stieglitz, <i>Bernstein Center Freiburg, Germany</i>
11:30-12:00	[INV14] Electronic dura mater – Soft surface neural implants Stephanie Lacour, <i>EPFL, Switzerland</i>
12:00-12:15	[ST06] Demonstration of visual restoration with a subretinal photovoltaic implant and optogenetic therapy in non-human primates S. Picaud*, P.H. Prevo†, G. Gouvain, M. Khoei, A. Chaffiol, H. Akolkar, J.A. Sahel, D. Dalkara, J. Duebel, R. Benosman, <i>Institut de la Vision, France</i>
12:15-12:30	[ST07] Multiplexed temporally focused light shaping for high-resolution multi-cell targeting N. Accanto* ¹ , C. Molinier ² , D. Tanese ¹ , E. Ronzitti ^{1,2} , Z.L. Newman ¹ , C. Wyart ⁴ , E. Isacoff ³ , E. Papagiakoumou ¹ , V. Emiliani ¹ , ¹ Paris Descartes University, France, ² Sorbonne Université, France, ³ University of California, USA, ⁴ Sorbonne Universités, France
12:30-13:30	Lunch Jubileumzaal
13:30-14:30	Poster Session 2 Jubileumzaal
14:30-17:15	Session 5 Promotiezaal
14:30-14:45	[ST08] Functional ultrasound imaging (fUSi) in rodents, primates and humans A. Urban, <i>NERF, USA</i>
14:45-15:15	[INV16] Tim Denison , <i>University of Oxford, UK</i>

- 15:15-15:45 **[INV17] Chronic sensing of brain activity**
Gaetano Leogrande, Medtronic, The Netherlands
- 15:45-16:15 Refreshment Break | Jubileumzaal**
- 16:15-16:45 **[INV18] In vivo local recordings of the magnetic signature of neurons with GMR sensors**
Myriam Pannetier-Lecoecur, University Paris-Saclay, France
- 16:45-17:15 **[INV19] High channel count electrophysiology: Neuropixels and beyond, where can technology take us?**
Tim Harris, Janelia Research Campus, USA
- 17:15-17:30 **Closing Remarks | Promotiezaal**