

Conference Program

Monday May 15 | Morning Session

8:00 - 8:30	Registration and Welcome Coffee	
8:30 - 8:40	Welcome Address	Dr. Urs Frey MaxWell Biosystems, Switzerland
Cutting-Edge Neurotechnologies		
8:40 - 8:45	Opening Remarks	Dr. Marie Obien MaxWell Biosystems, Switzerland
8:45 - 9:15	Scientific Talk	Understanding Cell Diversity in Neuronal Networks with HD-MEA Prof. Dr. Kenta Shimba Mathematical Biology and Bioengineering Lab, University of Tokyo, Japan (<i>online</i>)
9:15 - 9:45	Scientific Talk	Progress in Neuroengineering for brain repair: from <i>in vitro</i> to <i>in vivo</i> studies and beyond Prof. Dr. Michela Chiappalone DIBRIS, University of Genova / Rehab Technologies Lab, Institute Italiano Di Tecnologia, Italy
9:45 - 10:00	Short Talk Selected from Abstracts	Self-organized criticality of cultured neurons on HD-MEA Dr. Dai Akita Hirokazu Takahashi Lab, Research Center for Advanced Technology and Science, The University of Tokyo, Japan
10:00 - 10:30	Coffee Break	
10:30 - 11:00	Scientific Talk	Development of HD-MEAS and combination with other tools Prof. Dr. Andreas Hierlemann Bio Engineering Laboratory, ETH Zurich, Switzerland
11:00 - 11:30	Roundtable	Session Chair Dr. Marie Obien Panelists Prof. Dr. Kenta Shimba, Prof. Dr. Michela Chiappalone, Dr. Dai Akita, and Prof. Dr. Andreas Hierlemann
11:30 - 11:35	Intro to Keynote	Dr. Marie Obien MaxWell Biosystems, Switzerland
11:35 - 12:15	Keynote	Towards Systems Biology of Human Sleep/Wake Cycles: Phosphorylation Hypothesis of Sleep Prof. Dr. Hiroki Ueda Laboratory for Synthetic Biology, RIKEN, Japan
12:15 - 12:20	Closing Remarks	Dr. Marie Obien MaxWell Biosystems, Switzerland
12:20 - 12:30	Group photo	
12:30 - 13:30	Lunch	

Monday May 15 | Afternoon Session

13:30 - 13:50	Non-Scientific Talk	Maximize research impact: working with traditional and social media Dr. Giorgia Guglielmi Science writer and communicator, Switzerland
Brain Development & Controlled Neural Networks		
13:50 - 13:55	Opening Remarks	Dr. David Jäckel MaxWell Biosystems, Switzerland
13:55 - 14:25	Scientific Talk	Leveraging spontaneous activity in human stem cell derived neurons to model neurodevelopmental disorders Prof. Dr. Nael Nadif Kasri Nadif-Kasri Lab, Radboud University Medical Centre, Netherlands
14:25 - 14:55	Scientific Talk	Long-term morphological and functional dynamics of human stem cell-derived neuronal networks Dr. Rouhollah Habibey Busskamp Lab, University of Bonn, Germany
14:55 - 15:10	Sponsored Talk	High density MEA recording of primary rat neuron cultures and human iPSC-derived neuron cultures growing at low density on astrocyte feeder layers Dr. Robert E Petroski Neuroservices Alliances, USA
15:10 - 15:40	Coffee Break	
15:40 - 16:10	Scientific Talk	On the road to achieving brain-on-a-chip using MEA technology: role of connectivity and heterogeneity in the emerging patterns of electrophysiological activity Prof. Dr. Paolo Massobrio DIBRIS, University of Genova, Italy and & National Institute for Nuclear Physics (INFN), Genova, Italy
16:10 - 16:40	Scientific Talk	“Go with the flow” – inducing and tracking action potentials with CMOS MEAs Prof. Dr. Janos Vörös (online) and Jens Duru Laboratory of Biosensors and Bioelectronics, ETH Zurich, Switzerland
16:40 - 17:10	Roundtable	Session Chair Dr. David Jäckel Panelists Prof. Dr. Nael Nadif Kasri , Dr. Rouhollah Habibey , Dr. Robert E Petroski , Prof. Dr. Paolo Massobrio , and Jens Duru
17:10 - 17:15	Closing Remarks	Dr. David Jäckel MaxWell Biosystems, Switzerland
17:15 - 18:00	Transportation to Social Activities Locations	
18:00 - 19:30	Social Activities	
From 19:30	Free Evening	

Tuesday May 16 | Morning Session

8:00 - 10:00	Exclusive to MxW Users	MxW Users Exclusive Session
8:30 - 10:00	Open to all	MxW HD-MEA Interactive Workshop
10:00 - 10:30	Coffee Break	
Advanced Electrophysiology Methods		
10:30 - 10:35	Opening Remarks	Dr. Zhuoliang (Ed) Li MaxWell Biosystems, Switzerland
10:35 - 11:05	Scientific Talk	Effects of mGluR1 gain-of-function mutation on cerebellar and hippocampal circuits Prof. Dr. Edward O. Mann Mann Group, University of Oxford, United Kingdom
11:05 - 11:20	Short Talk	NDD-Ephys-dB: A human neurodevelopmental disorder electrophysiology database Prof. Dr. James Ellis Ellis Lab, The Hospital for Sick Children, Canada
11:20 - 11:35	Short Talk	Probing the synaptic basis of spiking using parallel HD-MEA and patch-clamp recordings Dr. Julian Bartram Bio Engineering Laboratory, ETH Zurich, Switzerland
11:35 - 11:55	Roundtable	Session Chair Dr. Zhuoliang (Ed) Li Panelists Prof. Dr. Edward O. Mann , Prof. Dr. James Ellis , and Dr. Julian Bartram
11:55 - 12:00	Closing Remarks	Dr. Zhuoliang (Ed) Li MaxWell Biosystems, Switzerland
12:00 - 13:00	Lunch	

Tuesday May 16 | Afternoon Session

13:00 - 14:00	Poster Session	
Disease Modeling & Drug Discovery		
14:00 - 14:05	Opening Remarks	Dr. Praveena Manogaran MaxWell Biosystems, Switzerland
14:05 - 14:35	Scientific Talk	Development of an iPSC derived 2D triculture MEA functional model for drug discovery in Neurodegeneration Dr. Melisa Ho and Dr. Dongyu (Doria) Wei GSK, USA
14:35 - 14:50	Short Talk Selected from Abstracts	Validation of novel targeted therapy for KCNQ2-related disorders in iPSC-derived neuronal model using high-density MEA Nina Dirx Peter De Jonghe Lab, VIB Center for Molecular Neurology Antwerp, Belgium
14:50 - 15:20	Sponsored Talk	Expanding Application of HD-MEA across 2D and 3D-cultured iPSC-derived iCell® Neuronal Cell Types Dr. Ouissame Mnie Filali FUJIFILM Cellular Dynamics Inc. (FCDI), Netherlands
15:20 - 15:50	Coffee Break	
15:50 - 16:20	Scientific Talk	Modelling NR2F1 deficiency in human brain organoids Dr. Michele Bertacchi Studer Lab, Institut de Biologie Valrose (iBV), France
16:20 - 16:50	Scientific Talk	A human in vitro model of the ischemic penumbra Prof. Dr. Monica Frega Frega Lab, University of Twente, Netherlands
16:50 - 17:05	Short Talk Selected from Abstracts	An <i>in-vitro</i> patient-specific sensory neuron model of pain for drug discovery Dr. Rowan Taylor Human Centric Drug Discovery, United Kingdom
17:05 - 17:20	Short Talk Selected from Abstracts	Modeling Dravet syndrome using human neurons plated on high-density multielectrode arrays Dr. Matt Kelley Pfizer, USA
17:20 - 18:00	Roundtable	Session Chair Dr. Praveena Manogaran Panelists Dr. Melisa Ho , Nina Dirx , Dr. Ouissame Mnie Filali , Dr. Michele Bertacchi , Prof. Dr. Monica Frega , Dr. Antigoni Katsikoudi , and Dr. Matt Kelley
18:00 - 18:05	Closing Remarks	Dr. Praveena Manogaran MaxWell Biosystems, Switzerland
18:05 - 19:00	Break / Transportation	
19:00 - 22:00	Conference Dinner	

Wednesday May 17 | Morning Session

Brain Organoids Advances & Applications		
8:30 - 8:35	Opening Remarks	Dr. Laura D'Ignazio MaxWell Biosystems, Switzerland
8:35 - 9:05	Scientific Talk	Are there sex differences in <i>in vitro</i> models for brain disorders? – A perspective from the Women's Brain Project Dr. Melanie Einsiedler Schaeren-Wiemers Lab & Women's Brain Project, University of Basel, Switzerland
9:05 - 9:35	Scientific Talk	Modeling brain functions using microglia-containing organoids Prof. Dr. Tarja Malm Malm Lab, University of Eastern Finland, Finland
9:35 - 10:05	Scientific Talk	Modeling interregional circuits by connecting neural organoids with a bundle of axons Prof. Dr. Yoshiho Ikeuchi Institute of Industrial Science, The University of Tokyo, Japan
10:05 - 10:25	Non-Scientific Talk	Expert Voice - Transitioning from Academia to Industry Dr. Melisa Ho GSK, USA
10:25 - 10:45	Coffee Break	
10:45 - 11:45	Poster Session	
11:45 - 12:15	Scientific Talk	Open Source Hardware & Software Modules for Multimodal Electrophysiology Experiments Prof. Dr. Mircea Teodorescu & Kateryna Voitiuk Teodorescu Lab, UC Santa Cruz, USA
12:15 - 12:45	Roundtable	Session Chair Martina De Gennaro Panelists Dr. Melanie Einsiedler, Prof. Dr. Tarja Malm, Prof. Dr. Yoshiho Ikeuchi, Prof. Dr. Mircea Teodorescu, and Kateryna Voitiuk
12:45 - 12:50	Closing Remarks	Dr. Laura D'Ignazio MaxWell Biosystems, Switzerland
12:50 - 13:00	MxW Summit 2023 Closing Remarks	Dr. Marie Obien MaxWell Biosystems, Switzerland
13:00	End of MxW Summit 2023	
14:00 - 16:30	MxW HQ Tours	