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# NeurONN: Neuromorphic Computing with Oscillatory Neural Networks

Aida Todri-Sanial

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# Phase-Change Switch Workshop on Neuromorphic Computing

## December 17, 2020

09:00 – 09:05 *Welcome Note from Organizers*  
**Siegfried Karg**, IBM Research Zurich, Switzerland

09:05 – 09:30 *Phase-Change Switch Project overview*  
**Adrian Ionescu**, EPF Lausanne, Switzerland

### EU projects related to Neuromorphic computing

09:30 – 09:55 *NeurONN: Neuromorphic Computing with Oscillatory Neural Networks*  
**Aida Todri-Saniai**, CNRS, LIRMM, France

09:55 – 10:20 *MANIC: Developing materials for neuromorphic devices and circuits*  
**Beatriz Noheda**, RU Groningen, The Netherlands

10:20 – 10:45 *MeMscales, Memory with multi-scale time constants for neuromorphic architectures*  
**Elisa Vianello**, CEA Leti, France

10:45 – 11:00 *Coffee Break*

### Materials and Devices

11:00 – 11:30 *Neuromorphic computing via device physics in resistive switching memories*  
**Daniele Ielmini**, Politecnico di Milano, Italy

11:30 – 12:00 *Radio Frequency tunable functions with VO<sub>2</sub> and Ge-doped VO<sub>2</sub>*  
**Andrei Müller**, EPF Lausanne, Switzerland

12:00 – 12:30 *Ion liquid gate induced changes in properties of oxide thin films*  
**Stuart Parkin**, MPI Halle, Germany

12:30 – 13:30 *Lunch Break*

Event address:

<https://ibm.webex.com/ibm/onstage/g.php?MTID=e85e55534f154ad9f04867ad6f56328da>

### Neuromorphic Circuits & Architectures

13:30 – 14:00 *Exploiting temporal dynamics for sensing*  
**Elisabetta Chicca**, RU Groningen, The Netherlands

14:00 – 14:30 *Computing with delays: Getting inspiration from plasticity in neuroglial circuits*  
**Renaud Jolivet**, Univ Geneva, Switzerland

14:30 – 15:00 *VO<sub>2</sub> coupled oscillators as hardware accelerators for convolutional neural networks*  
**Elisabetta Corti**, IBM Research Zurich, Switzerland

15:00 – 15:15 *Coffee Break*

### Neuromorphic Computing

15:15 – 15:45 *Algorithm-Circuits-Device Co-Design for Neuromorphic Intelligence*  
**Melika Payvand**, Univ Zurich, Switzerland

15:45 – 16:15 *Memristive Neuromorphic Systems*  
**Bernabé Linares-Barranco**, CSIC-IMSE, Spain

16:15 – 16:45 *Phase-change memory enables energy-efficient brain-inspired computing*  
**Manuel Le Gallo**, IBM Research Zurich, Switzerland

