



PROGRAMME



Chania, Crete, Greece

23-26  
OCTOBER

2<sup>nd</sup>

WORKSHOP ON  
NEUROMORPHIC ORGANIC DEVICES

## SUNDAY – 23.10.2022

17:00 - 19:00 Registration

19:00 - 20:30 **Welcome**

## MONDAY – 24.10.2022

### SESSION 1

9:00 - 09:40 **K. Leo** (*invited*)  
Properties of all-solid state electrochemical transistors

9:40 - 10:20 **S. Fabiano** (*invited*)  
Organic electrochemical neurons and synapses

10:20 - 10:50 **L. M. Bongartz**  
Hysteresis and temperature-dependence of all-solid-state organic electrochemical transistors

10:50 - 11:20 *Coffee break*

### SESSION 2

11:20 - 12:00 **V. Erokhin** (*invited*)  
Polyaniline-based neuromorphic systems

12:00 - 12:30 **E. van Doremaele**  
Adaptive biosensing and neuromorphic classification based on an ambipolar organic mixed ionic-electronic conductor

12:30 - 13:00 **H. Ling**  
Reconfigurable organic synaptic transistor for integration of in-sensor computing

13:00 - 15:00 *Break*

### SESSION 3

15:00 - 15:40 **F. Santoro** (*invited*)  
Functional biohybrid neuromorphic interfaces

15:40 - 16:20 **E. Gomes** (*invited*)  
Neuromorphic devices based on organic/inorganic nanocomposites

16:20 - 17:00 **S. Goswami** (*invited, via Zoom*)  
Many-body molecular interactions in a memristor

17:00 - 17:40 **T. W. Lee** (*invited, via Zoom*)  
Organic synaptic transistors for neuromorphic computing and neuroprosthetics

18:00 - 20:00 **Poster Session**

## TUESDAY – 25.10.2022

### SESSION 4

9:00 - 09:40 **A. Talin** (*invited*)  
Tunable intervalence charge transfer in Prussian blue analogues enables stable and efficient biocompatible artificial synapses

9:40 - 10:20 **S. Wang** (*invited*)  
Skin-like neuromorphic devices for intelligent and personalized wearable technology

10:20-10:50

**L. Salvigni**

Investigation of biochemical sensing mechanism in organic electrochemical transistors: the role of electrochemical potential and capacitance

11:50-11:20

*Coffee break*

### SESSION 5

11:20-12:00

**H. Kleeman** (*invited*)

Design and fabrication of fast complementary OECT circuits for spiking neurons

12:00-12:30

**S. Kazemzadeh**

Flexible neuromorphic-neurotransmitter biohybrid interface

12:30-13:00

**D.-G. Seo**

Next-generation Stretchable Neuroprosthetics for Recovery of Coordinated Movement

13:00 - 14:30

*Break*

### SESSION 6

14:30 - 15:10

**F. Biscarini** (*invited*)

Dopamine sensing with organic neuromorphic devices in vitro and in vivo

15:10 - 15:50

**D. Georgiadou** (*invited*)

Large-area fabrication of memristive devices based on solution-processed Pb-free perovskite materials

15:50 - 16:20

**A. Weissbach**

Biomimetic Morris-Lecar spiking neuron integration with organic electrochemical transistors

16:20 - 16:50

*Coffee break*

### SESSION 7

16:50 - 17:30

**A. Adamansky** (*invited, via Zoom*)

Towards fungal brain

17:30 - 18:00

**M. Ghazal**

Interfacing neurons with organic nanoelectronics; from passive microelectrodes to organic electrochemical transistors

20:00

*Conference Dinner*

## **WEDNESDAY – 26.10.2022**

### SESSION 8

9:00 - 9:40

**R. Nawrocki** (*invited*)

Soft computing with soft materials

9:40 - 10:20

**S. Inal** (*invited*)

Stimuli responsive electron-transporting conjugated polymers

10:20 - 10:50

**K. Janzakova**

Electrochemical structuring of organic conducting polymers for its implementation and development as neuromorphic devices

10:50 - 11:20

*Coffee break*

## SESSION 9

- 11:20 - 12:00 **F. Alibart** (*invited*)  
Structural Plasticity with PEDOT:PSS electropolymerized dendritic fibers
- 12:00 - 12:30 **S. Spolaor**  
Neurotransmitter-based fuzzy control by means of artificial organic synapses
- 12:30 - 13:00 **M. Di Lauro**  
Transconductance-driven tunability of the neuromorphic response in electrolyte-gated organic transistors: principles and signal processing applications
- 13:00 - 14:30 **Break**

## SESSION 10

- 14:30 - 15:10 **J. Gerasimov** (*invited*)  
Evolvable organic electrochemical transistors
- 15:10 - 15:50 **S. Majumdar** (*invited*)  
Organic ferroelectric devices for near and in-sensor computing
- 15:50 - 16:20 **K.-N. Kim** (*via Zoom*)  
Organic light-emitting synapses with sub-band-gap turn on voltage
- 16:20 - 16:50 **Coffee break**

## SESSION 11

- 16:50 - 17:30 **S. Bamford** (*invited*)  
Skin Deep: experiments in neuromorphic tactile sensation
- 17:30 - 18:00 **Open Discussion and Conclusion Remarks**

### **Organizers:**

**Paschalis Gkoupidenis**, Max Planck Institute for Polymer Research, Germany

**Yoeri van de Burgt**, Eindhoven University of Technology, The Netherlands

**Sean Shaheen**, University of Colorado Boulder, US

**Giovanni Ligorio**, Humboldt-Universität zu Berlin, Germany

**Emil List-Kratochvil**, Humboldt-Universität zu Berlin, Germany



<https://neuromorphic.mitos.com.gr/>