



## Organic Neuromorphic Electronics

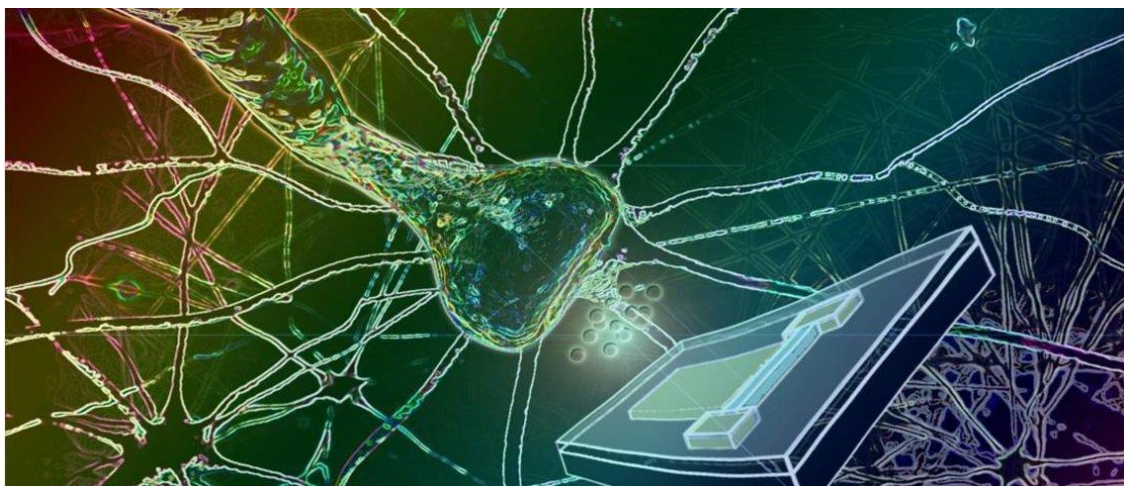
### Abstract

Hardware-based implementation of neuromorphic architectures offers efficient ways of data manipulation and processing, especially in data intensive applications such as big data analysis and real-time processing. In contrast to traditional von Neumann architectures, neuro-inspired devices may offer promising solutions in interacting with human sensory data and processing of information in real time. Harnessing brain efficiency at the technological level can be condensed to the term “brain-inspired computing”. Organic materials and devices have drawn significant attention due to their attractive characteristics for neuro-inspired devices and bioelectronics such as their ability to operate in electrolytes, spatiotemporal response, analogue memory phenomena, tunability via chemical synthesis, low-cost fabrication processes and biocompatibility.

This talk will cover development of neuro-inspired information processing functions and architectures with organic electrochemical devices which are traditionally being used in bioelectronics, including inducing neuroplasticity, learning forms and spatiotemporal information processing functions at a single-device level as well as new paradigms of neuromorphic architectures at circuit level.

### Bio

**Paschalis Gkoupidenis** earned his PhD in materials science from NCSR “Demokritos”, Athens, Greece, in 2014. During his PhD, his research focused on ionic transport mechanisms of organic electrolytes, and physics of ionic-based devices, and of non-volatile memories. In 2015 he started his postdoc at the Department of Bioelectronics (EMSE, France), where he worked on the design and development of organic neuromorphic devices based on electrochemical concepts. In 2017, Gkoupidenis joined the Max Planck Institute for Polymer Research (MPIP, Mainz, Germany), and he is currently a Group Leader at the Department of Molecular Electronics.



Where: <https://purdue-edu.zoom.us/j/92933375873?pwd=MTYyU0duK2k5V2ZOZ05yVEkyZVEzUT09>

Meeting ID: 929 3337 5873

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