



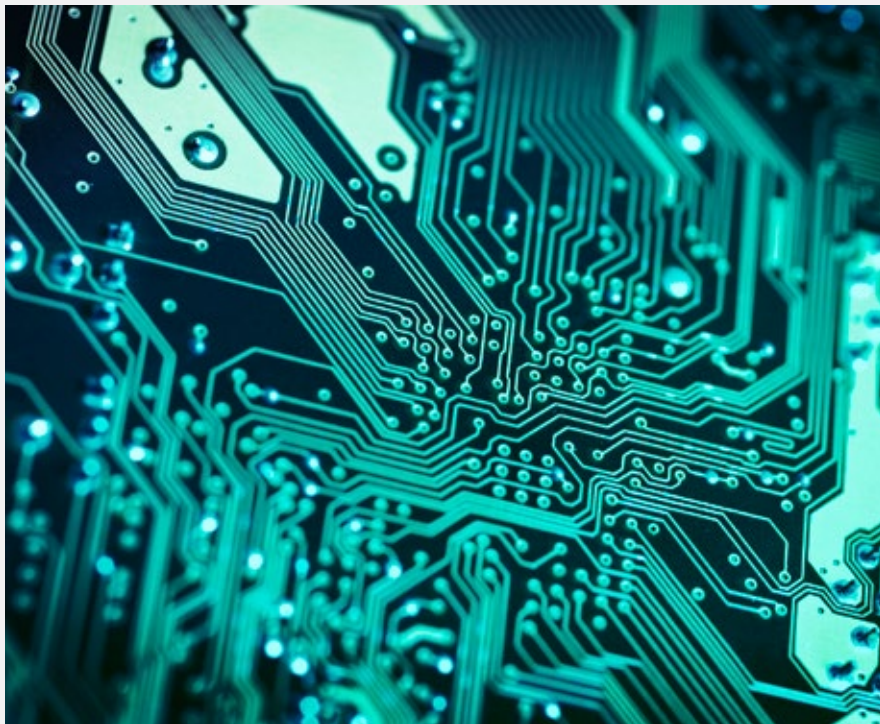
Loughborough
University

Future Trends in Neuromorphic Electronics

11–12 April 2019



Hosted by the Department of Physics and Centre for
the Science of Materials at Loughborough University



The mini-workshop “Future Trends in Neuromorphic Electronics” organised by the Department of Physics and Centre for the Science of Materials at Loughborough University is to take place on April 11–12, 2019.

The workshop will be devoted to discussions of ongoing activities aimed at preparation and implementation of memristive elements for electronics hardware. The event is aimed at researchers from Physics, Chemistry, Material Science, Electrical Engineering, Biosciences and Computer Science who work in the fields of memristors, neural networks and neuromorphic computing.

The workshop will be attached to the annual Sir Nevil Mott Lecture given this year on April 11th by Prof Stanley Williams who made the experimental discovery of memristors in 2008: www.lboro.ac.uk/science/events/mott-lecture-apr19.html

Thursday 11th April

11:40 – 12:00 Welcome / Tea and coffee

12:00 – 12:40 Accelerating Neuromorphic Workloads through Novel Devices, Architectures and Algorithms

Jonas Weiss, IBM Zurich

12:40 – 13:20 Neuromorphic Systems in Consumer Electronics: near-term and mid-term prospects

Slava Chesnokov, ARM

13:20 – 14:00 Lunch

14:00 – 14:40 Advances in Experimental Unconventional Computing

Andy Adamatzky, University of the West of England, Bristol

14:40 – 15:20 Neuromorphic devices using organic materials

Paschalis Gkoupidenis, MPI for Polymer Research

15:20 – 15:40 Tea and coffee

15:40 – 16:20 A route to hierarchical control in artificial intelligent systems: memristors with optically tuneable STDP synaptic plasticity

Neil Kemp, University of Hull

16:20 – 17:00 Memristive Devices and Arrays for Brain-Inspired Computing

Quangfei Xia, University of Amherst

17:30 – 18:00 Mott lecture refreshments

18:00 – 19:00 Finding the Mott memristor

Stanley Williams, Texas A&M University

19:30 – 21:30 Dinner (by invitation only)

Friday 12th April

- 08:50 – 09:30** **Memristive Technologies: a viable pathway for beyond Moore electronics and AI**
Themis Prodromakis, University of Southampton
- 09:30 – 10:10** **Universal mem-computing by Cellular Neural Networks**
Ronald Tetzlaff, TU Dresden
- 10:10 – 10:30** **Tea and coffee**
- 10:30 – 11:10** **Silicon oxide neuromorphic elements
– synaptic behaviour and beyond**
Tony Kenyon, UCL
- 11:10 – 11:50** **Random Telegraph Noise and its Impact on
Pattern Recognition Accuracy of RRAM-Based
Synaptic Neural Network**
Wei Zhang, Liverpool John Moores University
- 11:50 – 12:10** **Modelling artificial neurons**
Sergey Saveliev, Loughborough University
- 12:10 – 12:25** **Threshold switching in niobium oxide devices**
Pavel Borisov, Loughborough University
- 12:25 – 12:30** **Conclusions**
Sergey Saveliev
- 12:30 – 13:00** **Lunch**
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General enquiries

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