



Oxford Autumn School in Neuroscience 2020

Monday 28th September

09.25 **Welcome**, Professor Masud Husain, Chair Oxford Autumn School in Neuroscience

The power of Drosophila research: Neural mechanisms at cellular resolution

Chair: Professor Scott Waddell, Centre for Neural Circuits and Behaviour, Department of Physiology Anatomy and Genetics, University of Oxford

09.30 - 10.10 Dr Gregory Jefferis, MRC Laboratory of Molecular Biology, University of Cambridge
Whole brain circuits for learned and innate behaviour

10.10 - 10.50 Dr Lucia Prieto-Godino, The Francis Crick Institute, London.
Evolution of olfactory circuits on the fly

10.50 - 11.00 **Break**

11.00 - 11.40 Dr Carlos Ribeiro, Champalimaud Center for the Unknown, Lisbon
Dissecting the neuronal basis of nutritional decisions

11.40 - 12.20 Professor Irene Miguel-Aliaga, London Institute of Medical Sciences, Imperial College, London.
The second brain of a simpler gut

12.20 - 13.00 **Lunch break**

Deep learning theories in neuroscience: Potential and pitfalls

Chair: Dr Andrew Saxe, Department of Experimental Psychology, University of Oxford

13.00 – 13.40 Dr Tim Kietzmann, Donders Institute for Brain, Cognition and Behaviour, Radboud University
Deep neural networks as a framework for understanding the dynamic computations of the human visual system

13.40 - 14.20 Dr Rebecca Jackson, MRC Cognition and Brain Sciences Unit, University of Cambridge
Reverse-Engineering the Neural Architecture for Controlled Semantic Cognition

14.20 - 14.30 **Break**

14.30 - 15.10 Dr Andrew Saxe, Department of Experimental Psychology, University of Oxford
Dynamics of learning contextual, controlled, and abstract representations in deep neural networks and the brain

15.10 - 15.50 Professor Kalanit Grill-Spector, Stanford Vision and Perception Neuroscience Lab, Stanford University
Human visual cortex as a window into the developing brain



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Neurobiology: Evolutionary Insights

Chair: Professor Robin Dunbar, Department of Experimental Psychology, University of Oxford

- 09.30 - 10.10** Dr Jerome Sallet, Department of Experimental Psychology, University of Oxford
Anatomo-functional properties of the social brain in human and non-human primates
- 10.10 - 10.50** Professor Sophie Scott, Institute of Cognitive Neuroscience, University College London
The neurobiology of speech and laughter - an evolutionary perspective
- 10.50 - 11.00** Break
- 11.00 - 11.40** Dr Gillian Brown, School of Psychology and Neuroscience, University of St Andrews
Prenatal hormones and sex differences in human behaviour
- 11.40 - 12.20** Professor Robin Dunbar, Department of Experimental Psychology, University of Oxford
The neurobiology of social bonding
- 12.20 - 13.00** Lunch Break

Crossing scales in neuroanatomy: Linking MRI to microscopy

Chair: Professor Karla Miller, Wellcome Centre for Integrative Neuroimaging, University of Oxford

- 13.00 - 13.40** Dr Konrad Wagstyl, UCL Queen Square Institute of Neurology, London
BigBrain atlas of cortical layers: Linking cortical microstructure to in vivo measures of cortical structure
- 13.40 - 14.20** Dr Manisha Aggarwal, Department of Radiology and Radiological Science, Johns Hopkins University
From mesoscale imaging to micro-imaging and beyond: Probing length scales in the brain with diffusion MRI
- 14.20 - 14.30** Break
- 14.30 - 15.10** Dr Anastasia Yendiki, Massachusetts General Hospital, Harvard Medical School
Tracts you can trust: Integrating microscale optical imaging and mesoscale diffusion MRI
- 15.10 - 15.50** Prof Ellison F. Cardoso, Prof Maria da Graça Martin and Prof Helmut Heinsen, Department of Radiology, University of São Paulo Medical School
High-resolution MRI: experience from an imaging platform in the autopsy room
- 15.50 - 16.00** Closing remarks