



216th Lecture Series 7.30pm - 4th April 2018

Professor Kate Jeffery

Illuminating memory: optogenetics and the new science of the mind



ABSTRACT

How the brain makes memories of life events has been one of the earliest and most enduring questions in philosophy, psychology and neuroscience. Over the past 100 years we have learned that there are neural circuits devoted to forming and tending these memories, and making them available for retrieval. Understanding how this process operates is complicated by the tiny size of neurons and the distributed nature of memory. However, emerging new tools are making it possible to observe and manipulate selected neurons directly. One of the most remarkable of these tools involves borrowing genes from light-sensitive organisms and inserting them into neurons, to make them light-sensitive also. This talk will outline how neuroscientists are using these “optogenetic” tools to elicit, modify and even implant memories directly into these neural systems, to try and answer long-standing questions about how memory works, and eventually develop new therapeutic tools for when memories go wrong.

BIOGRAPHY

Originally trained as a doctor in her native New Zealand, after qualifying Kate undertook an MSc at Otago University in Dunedin, NZ, studying a physiological phenomenon known as LTP, thought to be a memory mechanism. Kate then moved to Edinburgh to study for her PhD looking at how LTP in rats relates to their navigation behaviour. She spent her postdoc years at University College London, learning to study spatially sensitive neurons at the single-cell level. Kate Jeffery is now a Professor of Behavioural Neuroscience and Wellcome Trust Investigator at UCL, where she heads the Institute of Behavioural Neuroscience. Her research interests focus on the hippocampal spatial memory system. She is also co-director of the electrophysiology company Axona Ltd. and was recently elected to the Council of the Royal Institute of Navigation.

LINKS

<https://www.ucl.ac.uk/pals/research/experimental-psychology/person/kate-jeffery/>

**All lectures take place in Lecture Theatre K3.25, John Anderson Building,
University of Strathclyde, Rottenrow East, Glasgow G4 0NG.**

The John Anderson Building is in the pedestrianised area between Rottenrow and Rottenrow East. Free car parking is available behind the building. From High Street enter Rottenrow East at the Barony.

Refreshments will be served at 9.00pm.

Visitors Welcome