

**June 6, 2008**

Micro-environmental control of neurotransmitter signalling at individual central synapses

**Prof. Dmitri A Rusakov**

Institute of Neurology, University College London

**ABSTRACT OF THE TALK**

A packet of glutamate released from a presynaptic terminal carries an elemental excitatory message in neural circuits of the brain. How the ongoing network activity and the synaptic environment interact to shape this message is poorly understood. We combine patch-clamp electrophysiology with advanced methods of two-photon excitation imaging and three-dimensional electron microscopy to examine mechanisms that (a) modulate glutamate release probability through presynaptic electrotonic influences and (b) affect rapid diffusion of glutamate and its high-affinity buffering by astroglia at individual hippocampal synapses.

**CV**

1984: MSc equivalent in Physics, Dnepropetrovsk National University (Ukraine).

1988: PhD in Biophysics, Bogomoletz Institute of Physiology, Kiev.

1990-1993: Senior Fellow, Bogomoletz Institute of Physiology, Kiev.

1993-1999: Research Fellow, Open University (Mike Stewart), National Institute for Medical Research (Tim Bliss, Alan Fine).

1999: MRC Career Development Award (intermediate group leader, Lecturer).



Since 2000: Institute of Neurology, University College London

2003: Senior Wellcome Trust Fellow (senior group leader), Reader in Neuroscience.

2007: Chair and Professor of Neuroscience.