

BIOLS SEMINAR SERIES

北京生命科学研究院精品讲座

报告时间：2013年9月23日（星期一）下午15:00

报告地点：中国科学院生物物理研究所图书馆报告厅

报告题目：Channel-sensor coupling during exocytosis in central synapses.

报告人：Peter Jonas. Member of German Academy of Natural Scientists Leopoldina. Full Professor and founding member of a Neuroscience cluster, Institute of Science and Technology (IST) Austria.

欢迎广大科研人员和研究生光临！



Prof. Peter Jonas received his Medical Doctor in 1987 from University of Giessen, German. He was appointed Full Professor and head of department, University of Freiburg, at the Physiological Institute in 1995, and honored Full Professor and founding member of a Neuroscience cluster, Institute of Science and Technology (IST) Austria in 2010. Prof. Jonas was elected Member of German Academy of Natural Scientists Leopoldina in 2002 and Member of the Academy of Sciences, Heidelberg, in 2008. He is also the member of the editorial boards of *Science*, *Journal of Neuroscience*, and *Journal of Physiology*, etc.

The aim of Prof. Jonas' research group is to understand how the synaptic function shapes complex activity in the neuronal microcircuits, such as rhythmic activity or encoding, storage, and retrieval of information. Over the last 15 years in Freiburg and the first year at IST Austria, his group made several fundamental contributions to our current understanding of synaptic transmission in neuronal microcircuits. The major questions they are currently addressing are: Synaptic function in GABAergic microcircuits; Mechanisms of transmitter release at glutamatergic synapses and Mechanisms of synaptic plasticity.

Key Publications:

- 2012. Nanodomain coupling between Ca^{2+} channels and sensors of exocytosis at fast mammalian synapses. *Nat. Rev. Neurosci.* 13:7-21
- 2012. Active dendrites support efficient initiation of dendritic spikes in hippocampal CA3 pyramidal neurons. *Nat. Neurosci.* 15:600-606.
- 2012. How the "slow" Ca^{2+} buffer parvalbumin affects transmitter release in nanodomain coupling regimes at GABAergic synapses. *Nat. Neurosci.* 15:20-22.
- 2010. A small number of open Ca^{2+} channels trigger transmitter release at a central GABAergic synapse. *Nat. Neurosci.* 13: 19-21.
- 2010. Dendritic mechanisms underlying rapid synaptic activation of fast-spiking hippocampal interneurons. *Science* 327: 52-58
- 2007. Synaptic mechanisms of synchronized gamma oscillations in inhibitory interneuron networks. *Nat. Rev. Neurosci.* 8:45-56.
- 2006. Patch-clamp recording from mossy fiber terminals in hippocampal slices. *Nat. Protoc.* 1:2075-2081.
- 2005. Asynchronous GABA release generates long-lasting inhibition at a hippocampal interneuron-principal neuron synapse. *Nat. Neurosci.* 8:1319-1328
- 2004. Enhanced synaptic plasticity in newly generated granule cells of the adult hippocampus. *Nature* 429:184-187.
- 2004. Functional conversion between A-type and delayed rectifier K^{+} channels by membrane lipids. *Science* 304:265-270
- 2000. Distal initiation and active propagation of action potentials in interneuron dendrites. *Science* 287:295-300
- 1998. Corelease of two fast neurotransmitters at a central synapse. *Science* 281:419-424
- 1995. Relative abundance of subunit mRNAs determines gating and Ca^{2+} permeability of AMPA receptors in principal neurons and interneurons in rat CNS. *Neuron* 15:193-204.
- 1994. Differences in Ca^{2+} permeability of AMPA-type glutamate receptor channels in neocortical neurons caused by differential GluR-B subunit expression. *Neuron* 12:1281-1289

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