

# **Functional and Structural Diversity of Neuronal Synapses**

Guoqiang Bi

*School of Life Sciences, University of Science and Technology of China, China*

Synapses are communication nodes in neuronal circuits. Robust rules of activity-induced synaptic plasticity are believed to play instructive roles in learning and memory. Recent studies suggest that these rules can take quantitatively and qualitatively different forms under different contexts of extrinsic and intrinsic modulation. I will present examples demonstrating the diversity and modulation of synaptic plasticity in vitro and in vivo. I will also present preliminary results on synaptic ultra-structures from super-resolution imaging and discuss how quantitative analysis of such structures might lead to a better understanding of synaptic plasticity.