



SFB 1286 Quantitative Synaptology

“Molecular Logic of Synaptic Circuit Organization”

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Abstract:

Connections between nerve cells called synapses are the fundamental units of communication and information processing in the brain. The accurate wiring of neurons through synapses into neural networks or circuits is an essential feature of brain organization. Neuronal networks are sculpted and refined throughout life by constant adjustment of the strength of synaptic communication by neuronal activity, a process known as synaptic plasticity. Deficits in the development or plasticity of synapses underlie diverse neuropsychiatric disorders including autism, schizophrenia and intellectual disability. The Siddiqui lab research program comprises three major themes. One, to assess how biochemical switches control the activity of synapse organizing proteins, how these switches act through their binding partners and how these processes can be regulated to correct impaired synaptic function in disease. Two, to investigate how a family of synaptic proteins regulate specificity of neuronal circuit development and how defined circuits contribute to cognition and behaviour. Three, to address how synapses are formed in the developing brain and maintained in the mature brain and how microcircuits formed by synapses are refined to fine-tune information processing in the brain. Together, these studies have generated fundamental new knowledge about neuronal circuit development and plasticity and enabled us to identify targets for therapeutic intervention

Tuesday, 1st March 2022, 4:00 p.m.

Zoom login details:

[https://uni-](https://uni-goettingen.zoom.us/j/95500199401?pwd=dIV2dERIL1ZXZk5wT3k4TmlQRUQ0UT09)

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Meeting ID: 955 0019 9401

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