



Colloquium SFB 779 out of turn

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**Introducing affective information through
amygdala to medial-prefrontal projections**

Thursday, December 13, 2018 at 3 p.m.

**Leibniz Institute for Neurobiology
Brennekestr. 6, 39118 Magdeburg
Ebbinghaus Lecture Hall (ground floor)**

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Abstract; Oded Klavir

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Affective information has a global effect on all aspects of cognition and imbalance in emotional states characterize a broad spectrum of mental disorders from neuroses to psychoses. The Amygdala is in a key location to produce an integrated affective output, it receives strong direct sensory information from all sensory modalities through direct projections, it also receives strong projections from hippocampal areas and also vast projections from medial prefrontal areas, which are involved in behavioral control. Emotional neural signature, particularly of fear and safety are found in the same medial-prefrontal cortex (mPFC). The basolateral amygdala (BLA) and the mPFC are reciprocally and densely interconnected through excitatory synaptic projections and play a key role in the acquisition and extinction of fear memories. The common approach in the field has been to study top-down communication of threat-evoked fear expression and suppression of threat-related memories. This approach has shown the involvement of two subregions of the mPFC - the prelimbic region (PL) of the medial prefrontal cortex (mPFC) is involved in signaling fear expression, whereas neurons in the infralimbic (IL) region signal the attenuation of fear seen during extinction. In the talk I will present data supporting the function of the other, bottom up, direction and the reciprocal information transfer in both directions. Through recordings in behaving animals and a new optogenetic stimulation method for manipulating the strength of the BLA-mPFC projection, we explore the role of the integrated affective BLA information projected to the mPFC specifically on fear and safety behavior. I will also discuss the potential of this pathway as a channel for affective information to other behavioral circuits.