



EINLADUNG

zum Vortrag im Rahmen des Seminars des SFB/TRR 31

Freitag, 20. Januar 2017, 11.00 Uhr c.t.

im Raum W30 0-33/34 der Universität Oldenburg (NeSSy) und
Raum H28 / R 2.31 des Med. Campus Magdeburg (per Videoübertragung)

***"Multimodal integration in the avian midbrain: Cells,
Circuits, Concepts"***

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The vertebrate dorsal midbrain (superior colliculus in mammals, optic tectum in all other vertebrate classes) is a central interface between sensory stimuli and behavioral motor patterns. It receives a strong retinal projection that forms a map of visual space in the upper layers. This map acts as a master coordinate system for other sensory afferents (auditory, somatosensory etc.), leading to a multimodal representation of the sensory environment. With a high degree of structural order, identifiable cell types and known input and output connectivity, the analysis of the tectum with a combined experimental-computational approach can provide a mechanistic understanding of sensory computation and midbrain functions such as bottom-up attention. In my presentation, I will give an overview of our recent work on auditory input to the multimodal tectal map in the chicken. We started with the determination of the chicken HRTF, which turned out to be surprising as it contains contralateral discontinuities that enable the bird to determine the elevation of a sound source by head movements. We then focused on the projection from the ICx to the OT, which was found to be astonishingly weak. However, we could demonstrate a second projection via a part of the reticular formation, which might even represent the plesiomorphic condition in birds. We also recorded auditory receptive fields in the OT, the reticular formation, and the IC of chicken and found conspicuous annulus-shaped receptive fields in the OT. As some of our results are difficult to reconcile with the idea of an integrative map of space in the OT, I will discuss the possible significance of our findings in a broader context.