



EINLADUNG

zum Vortrag im Rahmen des Seminars des SFB/TRR 31

Freitag, 11. Juli 2014, 14 Uhr c.t.

im Raum W2 1-143 der Universität Oldenburg
und Raum H28 / R 2.31 des Med. Campus Magdeburg
(per Videoübertragung)

"Stimulus-specific adaptation in the auditory midbrain and thalamus"

Manuel Malmierca

University of Salamanca, Spain

Auditory Neurophysiology Laboratory
Institute of Neuroscience

Stimulus-specific adaptation (SSA) is the reduction in the responses to a common sound relative to the same sound when rare. It has been described in auditory cortex (AC) and in the auditory midbrain and thalamus (IC and MGB).

In this talk I will show our recent findings on recordings from single neurons in the IC and MGB of rats to an oddball paradigm, as well as the effect of reversible cortical deactivation and the manipulation at synaptic level as these responses.

Our data indicates: 1) Most neurons in the non-lemnical divisions of the IC and MGB show strong SSA; 2) the magnitude of adaptation in many IC neurons increased proportionally with frequency contrast and low probability of occurrence for deviant tones. 3) SSA varies within the neuronal receptive field. 4) GABAergic and/or glycinergic inhibition play a role in shaping SSA in the IC and MGB. 5) AC modulates the responses of neurons in a gain control manner but SSA in the IC and MGB is not inherited from the AC. Taken together our results suggest that SSA can be generated in a bottom-up manner throughout the auditory pathway and they are congruent with the notion that subcortical SSA can contribute upstream to the generation of MMN. I will also show how SSA is affected by anesthesia and modulated by the cholinergic system

In the future, we wish to know how SSA is related to predictive coding and also to understand how neurons that exhibit SSA code for other, more complex patterns of regularity beyond the oddball paradigm such as expected and unexpected sounds in different contexts.