



Sonderforschungsbereich/Transregio 31 "Das aktive Gehör"

EINLADUNG

zum Vortrag im Rahmen des Seminars des SFB/TRR 31

Freitag, 26. November 2010, 14 Uhr c.t.

im Raum H28 / R 2.31 (Video Conference Room)
Medical Campus Magdeburg und
W2 1-143 der Universität Oldenburg
(per Videoübertragung)

**"The learning of noise as a tool to probe the formation of
new auditory memories"**

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One basic goal of auditory perception is to recognize the plausible physical causes of incoming sensory information. In order to do so, listeners must learn recurring features of complex sounds and associate them with sound sources. However, how memories emerge from everyday auditory experience with arbitrary complex sounds is currently largely unknown. In this talk I will describe a novel psychophysical paradigm designed to observe the formation of new auditory memories [Agus, Thorpe, & Pressnitzer, Neuron, 2010]. Briefly, we showed that repeated exposure induced learning for noise samples up to 4s-long. The learning displayed several striking features: it was unsupervised and resilient to interference from other task-relevant noises. When memories were formed, they emerged rapidly, performance became abruptly near-perfect, and multiple noises were remembered for several weeks. The acoustic transformations to which recall was tolerant suggest that the learnt features were local in time. Based on these results, we hypothesize that fast spike-timing dependent plasticity combined with high spike-timing accuracy could be key to the efficient formation of auditory memories for noise. As the learning of noise paradigm uses totally meaningless sounds, it should also be well-suited for future investigations of computational and animal models of auditory memory.