



TECHNISCHE UNIVERSITÄT
CHEMNITZ

Institut für Physik Physikalisches Kolloquium



Mittwoch, 11.10.2017, um 16:00 Uhr

Ort: Reichenhainer Str. 90;
Zentrales Hörsaal- und Seminargebäude,
Raum 2/N013

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Sensory predictions of complex spectrotemporal sound patterns

To make sense of the world, we track the sensory environment for regular patterns and form internal models of sensory regularities. From such models of the world we can derive predictions about upcoming sensory input, which help us to filter incoming information according to its relevance and conserve our limited resources.

Many studies investigate the formation of sensory predictions in the auditory domain using simplified stimulus material, that is, sinewave sounds. Natural sounds, however, are characterized by their spectral structure varying dynamically over time. This poses a challenge of explaining how the stimuli's detailed spectrotemporal structure is incorporated in predictive models.

In this talk, I will present a row of studies focusing on this question by measuring electroencephalographic responses to regular and irregular sound stimuli, which contain at least two tonal elements differing in one dimension, such as tone frequency, concatenated into a single (but structured) perceptual unit. Results suggest that the contiguity between successive elements of a sound pattern entails temporarily directed associations, which are used to predict the forthcoming acoustic input on an element-by-element basis. Thus, the transitions between adjacent tonal elements seem to play a special role. However, several factors influence the establishment of the respective sensory predictions, such as the number of repetitions of the regularity, the duration of the elements, and the type of the transition.

Alle Zuhörer sind ab 15:45 zu Kaffee und Tee vor dem Hörsaal eingeladen.



Informationen zum Vortrag erteilt:
Prof. Dr. Thomas Seyller, Tel. 0371 531-32898

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