

Theoriekolloquium

Mittwoch, 12. Januar 2005

11.00 Uhr c.t.

Seminarraum 349, Theresienstr. 37 / III

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Sound Detection by Critical Oscillators in the Ear

The purpose of our ears is to capture sounds, so it comes as a surprise to find that they frequently also emit hums and whistles. Such emissions are a by-product of an active mechanism of detection, in which energy is expended to boost faint signals. I will discuss the nature of the nonlinear dynamical system that is likely to form the basis of this detection mechanism. The theory is supported by recent microscopic observations of the dynamics of sensory cells in the inner ear of the frog. It also suggests how acoustic energy of different frequencies is transmitted to different places within the mammalian cochlea – the basis of frequency discrimination.

gezeichnet: Buchalla