



EINLADUNG

zum Vortrag im Rahmen des Seminars des SFB/TRR 31

Freitag, 1. November 2013, 14 Uhr c.t.

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

"Evidence against power amplification in the cochlea"

Marcel van der Heijden

Department of Neuroscience
Erasmus MC, Rotterdam, NL

Sound-induced traveling waves in the inner ear peak at a frequency-dependent location. Some form of motility is widely believed to boost this peaking by injecting extra power into the wave. We determined the power carried by the wave from two-point recordings of basilar membrane motion in sensitive cochleae. Up to moderate intensities, the peak wave power was slightly less than the acoustic power entering the middle ear. At higher intensities, an increasingly smaller fraction of the acoustic power reached the peak region. Thus cochlear dynamic compression stems from variable dissipation rather than saturating amplification. Additional measurements revealed that the peaking of cochlear waves can be explained by dispersive effects similar to the growth of sea waves approaching the beach.