



EINLADUNG

zum Vortrag im Rahmen des Seminars des SFB/TRR 31

Freitag, 12. Dezember 2008, 14 Uhr c.t.

Raum W2 1-143, Universität Oldenburg
und
Raum G26.1 – 010, Rechenzentrum der Universität Magdeburg
(per Videoübertragung)

VARIATIONS ON A THEME OF MACH

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Stimuli producing Mach bands were used to mask the detection of narrow bars in standard two-alternative forced-choice experiments. The masking stimulus (mean luminance 78 cd/m²) presented on a carefully linearized display, subtended 4° x 4° of visual angle in each of two 400-ms observation intervals separated by a 650-ms pause. The bars to be detected subtended 4° x 9' and, like the Mach band pattern, were horizontally orientated and gated on and off rectangularly. Between observation intervals, an uniform field at the mean luminance was present and arrows on both sides of the masking stimulus indicated the location where the signal bar would appear (with equal probability) in one of the two observation intervals. A range of locations across the Mach pattern were used. In experiments where the bars were only increments or only decrements, detection was particularly easy when the bars fell in either the bright or dark Mach bands because the bars widened or narrowed the Mach bands in a detectable way at contrasts where the bars themselves could not be seen. Because incremental and decremental bars had opposite effects on the widths of the bands, randomizing the polarity of the bars removed this cue. Performance as a function of signal location with signals of random polarity was analyzed separately for incremental and decremental bars, and large oscillations with location were observed. The oscillations for the two polarities were 180° out-of-phase. The oscillations disappear if a step masking pattern replaces the Mach-band stimulus or, with the latter, if the stimulus presentation time is made sufficiently short.