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Session: Application of Psychoacoustics in Noise

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Status of Psychoacoustics in Noise Analysis

Abstract:

Psychoacoustics provides knowledge about the relationship between acoustical stimuli and provoked hearing sensations for specific “one-dimensional” sensations like loudness, sharpness, roughness or fluctuation strength. Psychoacoustic measures are often applied in the context of sound quality investigations. Sound quality has to be understood as a multi-dimensional phenomenon related to the perception of sensory pleasantness (sound character) and suitability of sound in context. It is widely accepted that psychoacoustic measures offer better agreement with auditory sensation than conventional A-weighted sound pressure levels and spectra do. In particular, the psychoacoustic parameter loudness gains extensively in significance, because it shows a higher correspondence with the sensation of volume (loudness) than any sound level indicator. Thus, loudness represents a dominant feature for sound quality evaluation and is frequently applied in numerous applications. In the field of *environmental noise* the main focus lies on the exact measurement and description of the acoustical situation in a pure physical sense, whereas the community noise perspective tries to bridge acoustical exposure and the human assessment of noise in sense of annoyance level. In contrast to it, the disciplines of psychoacoustics, sound quality and soundscape put more emphasis on the perceiving human being. This paper gives an overview about the status of psychoacoustics with respect to application in noise.

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