

2.11 31631 PSYCHOACOUSTICS

1. Psychoacoustics and Subjective Quantities
 - 1.1 Ear Anatomy and Function
 - 1.2 Pinna
 - 1.3 Temporal Bones
 - 1.4 Ear Canal
 - 1.5 Middle Ear
 - 1.6 Acoustic Reflex
 - 1.7 Inner Ear
2. Frequency Selectivity
 - 2.1 Frequency Tuning
 - 2.2 Masking and Its Application in Audio Encoding
 - 2.3 Auditory Filters and Critical Bands
3. Nonlinearity of the Ear
 - 3.1 Perception of Phase
 - 3.2 Auditory Area and Thresholds
 - 3.3 Hearing over Time
4. Loudness
 - 4.1 Equal Loudness Contours and Loudness Level
 - 4.2 Level Measurements with A-, B-, and C-Weightings
 - 4.3 Loudness in Sones
 - 4.4 Loudness versus Bandwidth
 - 4.5 Loudness of Impulses
 - 4.6 Perception of Dynamic Changes
5. Pitch
 - 5.1 The Unit of Pitch
 - 5.2 Perception of Pure and Complex Tones
 - 5.3 Phase-Locking and the Range of Pitch Sensation
 - 5.4 Frequency Difference Limen
 - 5.5 Dependence of Pitch on Level
 - 5.6 Perfect Pitch
 - 5.7 Other Pitch Effects
6. Timbre
 - 6.1 Binaural and Spatial Hearing
 - 6.2 Localization Cues for Left and Right
 - 6.3 Localization on Sagittal Planes
 - 6.4 Externalization

6.5 Precedence (Hass) Effect

6.6 Franssen Effect

6.7 Cocktail Party Effect and Improvement of Signal Detection

6.8 Distance Perception

References Books:

1. Douglas Jones, personal communications (2007).
2. J. C. Middlebrooks, "Virtual localization improved by scaling non-individualized external-ear transfer functions in frequency," *J. Acoust. Soc. Am.*, 106, 1493-1510 (1999).
3. H. Haas, "Über den Einfluss eines Einfachechos an die Hörsamkeit von Sprache," *Acustica*, 1, 49-58 (1951).
4. F. M. Wiener and D. A. Ross, "Pressure distribution in the auditory canal in a progressive sound field," *J. Acoust. Soc. Am.*, 18, 401-408 (1946).
5. E. A. G. Shaw, "The external ear," *Handbook of sensory physiology*, ed. W. D. Keidel and W. D. Neff, vol. 5/1, pp 455-490, Springer, Berlin (1974).

