

# Contents

1. Mechanical Vibration and Sound Propagation	5
1.1 Mathematical nomenclature,	6
1.2 Forced oscillation,	8
1.3 Concept of impedance,	10
1.4 Theory of electromechanical and electroacoustic analogies,	11
1.5 Mechanical wave propagation and reflection,	14
2. Sound Transmission in the Ear	21
2.1 Specification of the auditory stimulus,	21
2.2 Sound transmission in the cochlea,	23
2.3 Sound transmission in the middle ear,	38
2.4 Transmission characteristics of the ear,	44
3. Pitch Function	46
4. Threshold of Audibility	56
4.1 Threshold of audibility as a function of temporal stimulus pattern,	56
4.2 Threshold of audibility as a function of sound frequency,	66
5. Masking, Critical Band, and Contrast Phenomena	68
6. The Loudness Function	80
References	93