

Syllabus 202A (Acoustics)

W. A. Kuperman

- 1 Fundamental Acoustics: Some Background**
- 2 Fluid Mechanics, Thermodynamics and the Acoustic Wave Equation**
 - 2.1 Basic Equations of Fluid Mechanics
 - 2.2 Some Thermodynamics
 - 2.3 The Linear Wave Equation
- 3 Acoustic Waves**
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 - 3.2 Preliminaries: Complex Notation
 - 3.3 Acoustic Waves from Fluid Mechanics
 - 3.4 Wave Equation Solutions in Cartesian Coordinates
 - 3.5 Energy, Power and Intensity
 - 3.6 Energy
 - 3.7 Spherical Waves
 - 3.8 A Simple Source
 - 3.9 Dipole Source
 - 3.10 More on Units
- 4 Ocean Acoustics and More on Sound Transmission**
 - 4.1 Bottom Loss: Reflection and Transmission
 - 4.2 Ocean Acoustic Environment
 - 4.3 Attenuation
 - 4.4 Scattering and Reverberation
 - 4.5 Ambient Noise Sound Propagation Models
- 5 Sonar Equation**
 - 5.1 Introduction
 - 5.2 Detection Threshold and "ROC" Curves
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- 6 The Wave Equation for Sound Propagation in the Ocean**
- 7 Some Simple Array Processing**