



# Acoustic Signals and Hearing

## A Time-Envelope and Phase Spectral Approach

Mikio Tohyama, Founder, Wave Science Study (WSS), Fujisawa, Japan

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**Gain a modern understanding of the principles of acoustics from the perspective of hearing**

### KEY FEATURES

- Presents unique sounds and sound fields from the perspective of hearing
- Covers source-signature and sound-path analysis
- Gives a reconstruction of the basics of acoustics and audio engineering via timeless topics such as linear system theory in the time and frequency domains
- Uses the new envelope and phase analysis approach to signal and waveform analysis
- Provides new perspectives via phase properties on ways to solve acoustical problems
- Presents straightforward mathematical formulations that give familiarity to discrete expressions of sound waves
- Gives a seamless and intuitive understanding — from mathematical expressions to a subjective impression of sound

### DESCRIPTION

Understanding acoustics – the science of sound -- is essential for audio and communications engineers working in media technology. It is also extremely important for engineers to understand what allows a sound to be heard in the way it is, what makes speech intelligible, and how a particular sound is recognized within a multitude of sounds. *Acoustic Signals and Hearing: A Time-Envelope and Phase Spectral Approach* is unique in presenting the principles of sound and sound fields from the perspective of hearing, particularly through the use of speech and musical sounds.

*Acoustic Signals and Hearing: A Time-Envelope and Phase Spectral Approach* is an ideal resource for researchers and acoustic engineers working in today's environment of media technology, and graduate students studying acoustics, audio engineering, and signal processing.



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