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## 声超常材料：负参数声学材料的实现

(吉首大学物理与机电工程学院, 湖南 吉首 416000)

### Acoustic Metamaterials:Realizing Acoustic Materials with Negative Parameters

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**摘要** 声超常材料是质量密度和模量可以为负的新型人工材料, 其现在在概念上推动了声理论的发展, 同时也为研究各种新奇性质提供了可能, 从而在应用上为设计各种新型波功能器件提供了基础.对声超常材料的研究成为当前国际上的一个研究热点.对声超常材料的研究进展评述, 同时对局部共振机制实现负参数的基本原理进行阐述.

**关键词:** [超常材料](#) [局部共振](#) [负参数材料](#)

**Abstract:** Acoustic metamaterials are novel artificial materials that can be designed to possess negative mass density and modulus.Realization of such materials not only leads to conceptual advancements in the fundamental theory of acoustics,but also enables possibilities for the investigation of various kinds of novel properties.This in turn provides the foundation for designing a variety of novel wave-functional applications.Acoustic metamaterials have attracted enormous interests in recent years.In this paper the author presents an overview of the progress in the research on acoustic metamaterials and gives an illustration to the locally resonant mechanism for realizing negative material parameters.

**Key words:** [metamaterials](#) [local resonance](#) [negative-parameter-materials](#)

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