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The phononic crystals: An unending quest for tailoring acoustics
M. KUSHWAHA, Rice University — Periodicity (in time or space) is a *part and parcel* of every living being: One can see, hear, and feel it. Everyday examples are locomotion, respiration, and heart beat. The reinforced N-dimensional periodicity over two or more crystalline solids results in the so-called phononic band-gap crystals. These can have dramatic consequences on the propagation of phonons, vibrations, and sound. The fundamental physics of cleverly fabricated phononic crystals can offer a systematic route to realize the Anderson localization of sound and vibrations. As to the applications, the phononic crystals are envisaged to find ways in the architecture, acoustic waveguides, designing transducers, elastic/acoustic filters, noise control, ultrasonics, medical imaging, and acoustic cloaking, to mention a few. This review focuses on the brief sketch of the progress made in the field that seems to have prospered even more than was originally imagined in the early nineties. [See, e.g., M.S. Kushwaha, Mod. Phys. Kett. B **30**, 1630004 (2016)].

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