

[P23] Acoustic energy conversion from vibration to sound by artificial atoms

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Acoustic wave that is generated by pressure can be accumulated inside a box and expands suddenly. It is the resonance. In metamaterial point of view the resonance corresponds to creating imaginary velocity. The energy source of the resonance sound could be seismic energy.^[1] It is a method that generates infrasonic sound using huge empty boxes or artificial atoms underground. Also, it is a mechanical way to convert the seismic energy into sound and heat, and the artificial atoms can dissipate the seismic energy effectively. This new method of an earthquake-resistant design to support conventional aseismic system are described.^[2,3]

[1] S.-H. Kim and M. P. Das, *Modern Physics Letters B*, 16, 1050105 (2012).

[2] <http://www.technologyreview.com/blog/arxiv/27566/>.

[3] <http://blogs.discovermagazine.com/80beats/2012/02/14/theoretical-metamaterialcould-protect-buildings-from-earthquakes-by-dissipating-energy/>.