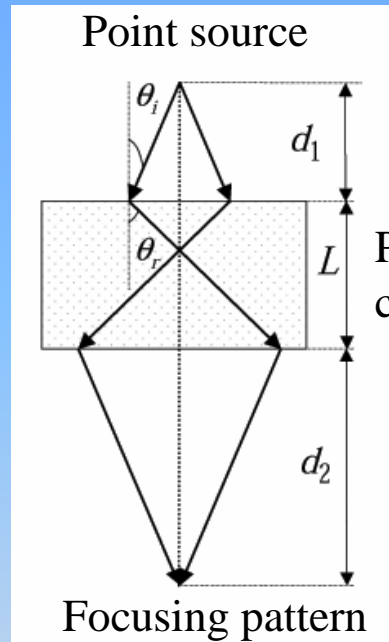
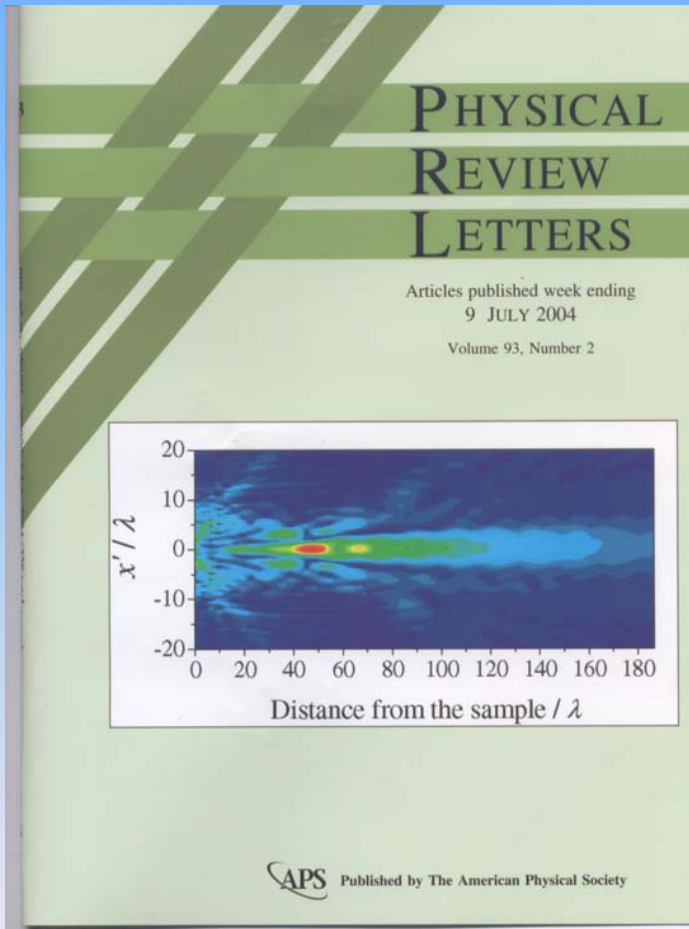


Focusing of sound in a 3D phononic crystal

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A combined experimental and theoretical study of phonon focusing phenomena in a pass band above the complete bandgap in a 3D phononic crystal showed that acoustic wave propagation depends dramatically on both frequency and incident direction. This propagation anisotropy leads to very large negative refraction, which can be used to focus a diverging ultrasonic beam into a narrow focal spot with a large focal depth.

The experimental field patterns are well explained using a Fourier imaging technique, based on the 3D equifrequency surfaces calculated from Multiple Scattering Theory.

