

Picosecond shear waves in nano-sized solids and liquids

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We will review recent progress on the generation and detection of picosecond shear acoustic waves. Examples will be shown in which the transverse isotropic symmetry of the sample structure is broken in order to permit shear wave generation through sudden laser heating. As an illustration of the technique, picosecond longitudinal and shear acoustic waves have been successfully employed to probe structural dynamics in nano-sized solids (gold nano-crystals assemblies) and nano-sized liquids (glycerol and water).