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**Experimental studies of generation and propagation of high  
frequency acoustic waves in various solid materials using  
ultraviolet picosecond laser pulses**

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The generation of high frequency acoustic waves by picosecond laser pulses in the ultraviolet region and their detection by optical interferometric schemes, is presented. The two main acoustical modes, longitudinal and shear are clearly apparent in the time resolved spectra of solid materials, for various absorbing energies, extending from the thermoelastic to the ablative regime. The ultraviolet light is strongly absorbed by insulator materials like Pyrex and thus strong elastic waves are produced. From the time separation of the longitudinal waves we have deduced values for the speed of sound in various materials and of different thickness, that are in very good agreement with those reported in the literature. Also the time bandwidth of the sound waves is measured and significant differences, originating from different sample thickness, are apparent.