

## **A New Method for the Generation of Surface Acoustic Waves of High Frequency**

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We describe a variation of the picosecond ultrasonic technique that can be used to generate high frequency surface waves. A transmission diffraction grating is formed on a transparent wafer, and is placed very close to the surface of a sample. A light pulse passing through the grating will give rise to a spatially-varying light intensity on the sample. This sets up a periodic thermal stress on the sample surface, which in turn generates a standing surface acoustic wave. This wave has a wavelength equal to the line spacing of the grating, and so the range of frequencies of waves that can be generated by this technique is limited only by the lithographic techniques available for the fabrication of the grating. In this paper, we will present a number of experimental results obtained with this new method, and will also report on measurements made with gratings deposited directly onto the samples.