

56. Title: Enhanced optical generation and detection of acoustic nanowaves in microcavities
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Abstract: The enhancement of the ultrafast coherent generation and detection of acoustic phonons in an optical microcavity is experimentally studied. We report pump-probe terahertz ultrasonic experiments in an optical microcavity as a function of laser energy and probe incidence angle. By tuning the laser wavelength to resonate with the microcavity mode at normal incidence and simultaneously varying the incidence angle of the probe beam we achieve a double optical enhancement. Under this condition both the coherent generation and detection of acoustic nanowaves are strongly enhanced. We demonstrate the use of optical microcavities as a promising tool to study acoustic phonons in reduced dimensions with increased sensitivity.