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Resolving dynamics of acoustic phonons by surface plasmons JINCHENG WANG, CHUNLEI GUO, University of Rochester — In this work, we employ surface plasmons as a sensitive probe technique to detect acoustic phonons in metal films following impulsive optical excitation. Surface plasmons are shown to have an enhanced sensitivity in detecting acoustic phonons in metals. Our study shows that the surface plasmon technique is a promising tool to detect small optical or mechanical property changes in metals at a miniature scale, suitable for a variety of applications, such as sensors and MEMS.

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