

Abstract Submitted
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Transient Grating Measurements of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ films C.L.S. KANTNER, UC Berkeley, LBNL, J.D. KORALEK, LBNL, I. HETEL, T.R. LEMBERGER, Ohio State University, J. ORENSTEIN, UC Berkeley, LBNL — Transient photoinduced changes in the transmission of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ thin films have been measured using the charge-grating technique. In this technique two non-collinear pulses are interfered to create a sinusoidal spatial variation in superfluid density, which leads to a grating in the transmission coefficient. Evolution of the amplitude and phase of this grating in the time-domain can be monitored by the coherent detection of a time-delayed diffracted probe pulse. Previous experiments using conventional pump-probe methods have revealed at least two components in the change in transmission. Resolving these components is inherently ambiguous as their relative phase is undetermined. We report on the use of the phase sensitivity of the transient grating experiment to separate the individual components of the two-component wave form.

C.L.S. Kantner
UC Berkeley, LBNL

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