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Optical-Pump Mid-Infrared Probe Study of Quasiparticle Dynamics in (La,Pr,Ca)MnO3 HAE JA LEE, Los Alamos National Laboratory, R.P. PRASANKUMAR, R.D. AVERITT, D.J. FUNK, A.J. TAYLOR, Los Alamos National Laboratory, S.-W. CHEONG, Rutgers University — We have investigated the temperature dependence of the quasiparticle dynamics in single crystal (La,Pr,Ca)MnO3 (LPCMO) using ultrafast optical spectroscopy. As a function of temperature, distinct changes in the dynamics occur upon crossing through the charge ordering and ferromagnetic transition temperatures. We will discuss the origin of the quasiparticle dynamics in light of the phase separation into submicrometer-sized mixtures of ferromagnetic metallic and charge-ordered insulating domains that occur in LPCMO.

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