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Time resolved reflectivity study of electron and hole doped cuprate superconductors JAMES HINTON, UC Berkeley, LBNL, JAKE KORALEK, LBNL, GUICHUAN YU, MUN CHAN, University of Minnesota, NEVEN BARISIC, University of Minnesota, University of Stuttgart, XUDONG ZHAO, Jilin University, MARTIN GREVEN, University of Minnesota, JOSEPH ORENSTEIN, UC Berkeley, LBNL — We study both the hole-doped cuprate $\text{HgBa}_2\text{CuO}_{4+\delta}$ (Hg1201) and the electron-doped cuprate $\text{Nd}_{2-x}\text{Ce}_x\text{CuO}_{4+\delta}$ (NCCO) using time-resolved optical reflectivity. In this technique, the sample is excited using an ultrashort 800 nm laser pulse, and the induced change in reflectivity is measured as a function of time after excitation. We focus on the temperature range above the superconducting transition; the fluctuating antiferromagnetic phase in NCCO and the pseudogap phase in Hg1201. In both cases we compare our results directly to neutron experiments, highlighting the relationship of the ultrafast optical response to magnetically ordered phases.

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