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Time-resolved Optical Study of Charge-ordered Manganites.[1] TAKAHISA TOKUMOTO, JUDY CHERIAN, RYAN DEROSA, PAULA SAHANGGAMU, SANHITA GHOSH, STEPHEN MCGILL, National High Magnetic Field Laboratory, Florida State University, TESFAYE GEBRE, HAIDONG ZHOU, CHRISTOPHER WIEBE, Department of Physics and NHMFL, Florida State University — We study the effects of applied electric fields and large magnetic fields on the optical properties of $Pr_{(1-x)}Ca_xMnO_3$ (x$\sim$0.5) (PCMO) and $La_{(1-x)}Ca_xMnO_3$ (x$\sim$0.18) (LCMO) using time-resolved techniques. Our measurements are performed down to 4 K and in dc magnetic fields up to 31 T. The conductivity of the low-temperature strong charge/orbital ordering in PCMO is altered by the application of an electric field and a magnetic field. We demonstrate that time- resolved optical reflection and Kerr effect measurements are capable of capturing these mixed electronic and magnetic effects to gain further insight into the change of the ordering.

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Takahisa Tokumoto
tokumoto@magnet.fsu.edu
National High Magnetic Field Laboratory, Florida State University

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