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Time-resolved Optical Study of Charge-ordered Manganites.¹ TAKAHISA TOKUMOTO, JUDY CHERIAN, RYAN DEROSA, PAULA SA-HANGGAMU, 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~0.5) (PCMO) and $La_{(1-x)}Ca_xMnO_3$ (x~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 lowtemperature 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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