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**High Magnetic Field Time-resolved Optical Study of Manganites.**[1] PAULA SAHANGGAMU, SANHITA GHOSH, STEPHEN MCGILL, National High Magnetic Field Laboratory, Florida State University, HAIDONG ZHOU, BEN CONNER, 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 $La_{(1-x)}Ca_xMnO_3$ (x$\sim$0.18) (LCMO) and $Pr_{(1-x)}Ca_xMnO_3$ (x$\sim$0.5) (PCMO) using time-resolved techniques. Our measurements are performed from 4 K to room temperature and in dc magnetic fields up to 31 T. The conductivity of the low-temperature ferromagnetic state in LCMO is altered by the application of an electric field and these electrically-induced changes are further modified in the presence of an applied magnetic field. We demonstrate that time-resolved optical methods are capable of capturing these mixed electronic and magnetic effects. In addition, we performed time-resolved Kerr effect measurements in PCMO in an attempt to gain further insight into the loss of strong charge/orbital ordering in the presence of large applied magnetic fields.

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