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Temperature- and field-dependent far-infrared studies of $(\text{La}_{0.4}\text{Pr}_{0.6})_{0.67}\text{Ca}_{0.33}\text{MnO}_3$ films¹ NAVEEN MARGANKUNTE, TARA. P. DHAKAL, Dept of Physics, Univ of Florida, ALEXANDRE ZIMMERS, Center for Superconductivity Research, Univ of Maryland, D.J. ARENAS, Dept of Physics, Univ of Florida, Y.J. WANG, NHMFL, Florida State University, AMLAN BISWAS, D.B. TANNER, Dept of Physics, Univ of Florida — We report far-infrared temperature (300 K-20 K) and magnetic field (0-18 T) dependent reflectance and transmittance studies of 1000 Å-thick hole-doped LPCMO thin films. Temperature-dependent measurements show evidence of phase coexistence in the sense that the film still shows insulating behavior at very low temperatures. Magnetic field studies at 4.2 K observe an insulator to metal transition, seen as large changes in reflectance and transmittance. The spectra are analyzed by using standard multilayer film-fitting procedures to extract the optical conductivity and other optical constants. The results are discussed in the context of effective medium approximations.

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