

Abstract Submitted
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Magneto-optical evidence of double exchange in a percolating lattice G. CAIMI, A. PERUCCHI, H.R. OTT, ETH Zurich, V.M. PEREIRA, A.H. CASTRO NETO, Dept. of Physics, Boston University, A.D. BIANCHI, Hochfeldlabor Dresden, Z. FISK, Dept. of Physics, UC Davis, L. DEGIORGI, ETH Zurich — Substituting *Eu* by *Ca* in ferromagnetic *EuB₆* leads to a percolation limited magnetic ordering. We present and discuss magneto-optical data of the *Eu_{1-x}Ca_xB₆* series, based on measurements of the reflectivity $R(\omega)$ from the far infrared up to the ultraviolet, as a function of temperature and magnetic field. Via the Kramers-Kronig transformation of $R(\omega)$ we extract the complete absorption spectra of samples with different values of x . The change of the spectral weight in the Drude component by increasing the magnetic field agrees with a scenario based on the double exchange model, and suggests a crossover from a ferromagnetic metal to a ferromagnetic Anderson insulator upon increasing *Ca*-content at low temperatures.

Leonardo Degiorgi
ETH Zurich

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