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Double Exchange Model for Magnetic Hexaborides VITOR PEREIRA, JOAO LOPES DOS SANTOS, EDUARDO CASTRO, Universidade do Porto, Portugal, ANTONIO CASTRO NETO, Boston University — A microscopic theory for rare-earth ferromagnetic hexaborides, such as $\text{Eu}(1-x)\text{Ca}(x)\text{B}_6$, is proposed on the basis of the double-exchange Hamiltonian. In these systems, the reduced carrier concentrations place the Fermi level near the mobility edge, introduced in the spectral density by the disordered spin background. We show that the transport properties such as Hall effect, magnetoresistance, frequency dependent conductivity, and DC resistivity can be quantitatively described within the model. We also make specific predictions for the behavior of the Curie temperature, T_c , as a function of the plasma frequency.

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