

Abstract Submitted  
for the March 1997 Meetings of the  
American Physical Society  
17-21 March 1997

Sorting Category

15(h)

Effects of Lattice Distortion and Mixed Valences on the Magnetic and Electrical Transport Properties of Magnetoresistive Manganites with A- and B-site Doping' CHU-CHENFU, GEOFF BEACH, ARKADII V. SAMOILOV, NAI-CHANG YEH, 114-36 Department of Physics, California Institute of Technology, Pasadena, CA 91125; RICHARD P. VASQUEZ, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109. -- The magnetic and electrical transport properties of ceramic and epitaxial films of A-site and B-site doped  $\text{LaMnO}_3$  are studied. The temperature and magnetic field dependent resistivity of  $\text{La}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$  and  $\text{La}_{0.5}\text{Ca}_{0.5}\text{CoO}_3$  epitaxial films on various substrates are compared with those of  $\text{La}(\text{Mn}_{1-x}\text{Co}_x)\text{O}_3$  and  $\text{La}(\text{Mn}_{1-x}\text{Ni}_x)\text{O}_3$  ( $x = 0.3, 0.5$ ) epitaxial films. The magnetic properties are studied by measurements of the magnetic susceptibility of these doped magnetoresistive manganites as a function of the temperature, dc magnetic field, and ac excitation frequency. The effects of B-site Co- and Ni-doping on the valences of Mn-ions, the magnetic exchange interaction, and the magnetoresistance will be compared with those of the A-site doped samples.

---

*Jointly supported by NASA and the Packard Foundation.*

Prefer Standard Session

---

Chu-Chen Fu

114.3(3), Department of Physics  
California Institute of Technology  
Pasadena, CA 91125

\*\*\*END\*\*\*