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Effects of Lattice Distortion and Mixed Valences on the Magnetic and Electrical Transport Properties of Magnetoresistive Manganites with A- and 13-site Doping. CHU-CHENFU, GEOFF BEACH, ARKADII V. SAMOILOV, NAI-CHANG YEH, 11436 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 LaMnO$_3$ are studied. The temperature and magnetic field dependent resistivity of La$_{0.7}$Ca$_{0.3}$MnO$_3$ and La$_{0.5}$Ca$_{0.5}$CoO$_3$ epitaxial films on various substrates are compared with those of La(Mn$_{1-x}$Co$_x$)O$_3$ and La(Mn$_{1-y}$Ni$_y$)$_3$O$_3$ ($z = 0.3, 0.5$) 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 11-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.

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