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Doping Dependence of Structural, Electrical and Magnetic Properties of $Sr_3(Ru_{1-x}Mn_x)_2O_7$ Single Crystals BIAO HU, Department of Physics and Astronomy, Louisiana State University, GREGORY T. MCCANDLESS, Department of Chemistry, Louisiana State University, E.W. PLUMMER, RONGYING JIN, Department of Physics and Astronomy, Louisiana State University — We have studied the doping dependence of structural, electrical and magnetic properties of $Sr_3(Ru_{1-x}Mn_x)_2O_7$ with $0.0 \leq x \leq 1.0$. Our single crystal X-ray diffraction refinements show that the RuO6 octahedron rotates about 7^o in undoped $Sr_3Ru_2O_7$. With the partial substitution of Ru by Mn, the rotation is gradually attenuated. Correspondingly, the electrical and magnetic properties of $Sr_3(Ru_{1-x}Mn_x)_2O_7$ vary with x. We will discuss the correlation between structure and physical properties in this system.

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