

Abstract Submitted
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Synthesis and Oxygen Content Dependent Properties of Hexagonal Manganites¹ B. DABROWSKI, S. REMSEN, S. KOLESNIK, O. CHMAISEM, J. MAIS, Department of Physics, Northern Illinois University, DeKalb, IL 60115, USA — Oxygen deficient samples of hexagonal (P6₃cm) DyMnO_{3+δ} ($\delta = -0.04$) were synthesized in Ar by intentional decomposition of the perovskite phase obtained in air. Hexagonal samples annealed under oxidizing conditions exhibit unusually large excess oxygen content ($\delta < 0.4$) and two new structural phases below 350 °C. We will demonstrate how structural, resistive, magnetic, and thermal expansion properties are sensitively dependent δ . Similar observations were made for other hexagonal manganites RMnO_{3+δ} indicating that their multiferroic properties can be controlled by the synthesis and annealing conditions.

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