Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Structural and Oxygen Storage Properties of Hexagonal Manganites CASTRO ABUGHAYADA, Northern Illinois University, BOGDAN DABROWSKI, Argonne National Laboratory, Northern Illinois University, STAN KOLESNIK, Northern Illinois University, OMAR CHMAISSEM, Argonne National Laboratory, Northern Illinois University, NIU TEAM — Complex oxides exhibiting superior reversible oxygen absorption/release capacities have been generating a great deal of interest due to their critical role in the development of energy related technologies, such as oxy-fuel and chemical looping combustion. Based on our previous studies of tolerance factor, we have successfully synthesized hexagonal ($P6_3cm$) $RMnO_{3+\delta}$ manganites (R=Dy, Ho, Y) for which we discovered a large reversible oxygen storage/release capacities (within the range of oxygen content 3.0 - 3.4) at unusually low temperatures near 300 °C which make them excellent candidates for air separation and production of high purity oxygen. Resistivity, structural, magnetic, and thermal expansion properties are correlated with the oxygen content $3+\delta$ for these compounds. Work supported by NIU Great Journey Assistantship.

Castro Abughayada
Department of Physics, Northern Illinois University,
DeKalb, IL 60115, USA

Date submitted: 17 Nov 2012 Electronic form version 1.4