

Abstract Submitted
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Magnetic, Structural and Resistivity Characterization of New $R_3Gd_3Ba_2Ca_2Cu_7O_{10}:Li$ Compounds (R= rare earth) C. AGUILAR, Instituto de Investigaciones en Materiales, UNAM, Mexico, DF 04510, E.E. MARINERO, Hitachi San Jose Research Center, 3403 Yerba Buena Road, San Jose, CA 95135, E. CHAVIRA, Instituto de Investigaciones en Materiales, UNAM, Mexico, DF 04510, L. BUCIO, Instituto de Fisica, UNAM, Mexico, DF 04510, H. PFEIFFER, Instituto de Investigaciones en Materiales, UNAM, Mexico, DF 04510 — We report on the synthesis of $R_3Gd_3Ba_2Ca_2Cu_7O_{10}:Li$ compounds with different rare earth elements (R= Dy, Ho) by solid state reaction. Reaction products during the synthesis were identified by XRD and their thermal stability measured by Thermo-Gravimetric Analysis (TGA). Rietveld refinement of the XRD spectra enabled us to identify two coupled phases: a tetragonal one and an orthorhombic component. Magnetic measurements were conducted in the range of 5 to 300K to determine their Curie point and evidence for superconducting transitions. We find that in spite of the fact that both the Dy and Ho containing samples have the same crystalline structure, they exhibit different magnetic behavior over the temperature range studied. Evidence for a critical temperature at 15K for the Dy containing sample is observed exhibiting the characteristic M_s vs. T dependence ascribed to superconducting behavior. Detailed structural characterization results and measurements of R vs. T will be presented to confirm that the behavior observed at 15K is evidence for superconducting behavior.

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