

Abstract Submitted
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Non-Cuprate Superconductor with Cubic Structure and $T_c = 85$

K J.M. ESTRADA, E. CHAVIRA, I. ROSALES, O. NOVELO, E. FREGOSO, Instituto de Investigaciones en Materiales, Universidad Nacional Autonoma de Mexico, D.F., Mexico, **E.E. MARINERO, M. NISHIOKA**, Hitachi GST San Jose Research Center, 3404 Yerba Buena Rd, San Jose, CA 95135, USA, **V. GARCIA-VAZQUEZ**, Instituto de Fisica, Benemerita Universidad Autonoma de Puebla, Puebla, Mexico, **M. SUCHOMEL**, Argonne National Laboratory, 9700 Cass Ave., Argonne, IL 60439-4856, USA — We have synthesized a new superconductor material, namely: **Ba(Yb_{0.38} In_{0.10}Sn_{0.42} Pb_{0.10})O_{2.66}**, by solid-state reaction in air and ambient pressure. The new compound is determined to have a T_c of 85 K, which is new record for a non-cuprate structure. Employing synchrotron XRD and Rietveld refinement, 5 structural phases are identified in the reaction products. The phases identified are: BaTb_{0.5}Sb_{0.5} O₃ (41.3%), Yb₂BaCuO₅ (26.1%), CuO (22.6%), Yb₂Cu₂O₅ (4.4%) and Ba_{1.99}Y_{1.01} Cu₃O₈ (5.6%). The microstructure exhibits cubic morphology (SEM) and EDX analysis is utilized to determine the stoichiometry of the new superconducting material, **Ba(Yb_{0.38} In_{0.10}Sn_{0.42} Pb_{0.10})O_{2.66}**, which is isostructural to the cubic BaTb_{0.5}Sb_{0.5} O₃ phase. Magnetic and Resistance measurements vs T indicate a superconducting transition at T_c at 85 K.

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