

Abstract Submitted
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Growth structure and superconductivity of $\text{Bi}_{1.7}\text{Bi}_{0.3}\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_{10+\delta}$ ceramics synthesized from glass-crystal precursors processed in solar type ovens¹ J.V. ACRIVOS, San Jose State University, D.D. GULAMOVA, Materials Science Institute SPA “Physics-Sun” Academy of Science, Uzbekistan , J.G. CHIGVINADZE, E.Andronikashvili Institute of Physics, Tbilisi, D. LOY, San Jose State University — The growth structure as well as the superconductivity of Bi/Pb2223 alloys is reported. Periodic lattice distortions (PLD) along the ab plane diagonal, direction of superconducting transport at the transition temperature, $T_c=107\text{K}$ are found to dominate the growth. Transport induced by the PLD may be responsible for the sharp T_c transitions, and the bursts of frequency and Abrikosov oscillations observed above the transition temperature up to 150K. Chemical synthesis in a heliostat oven was followed by fast quenching of the melt and annealing at 840-850K, XRD near the Cu K-edge, and T_c measured by axial-torsional vibrations in transverse magnetic fields. T_c and phase purity obtained by green solid state chemistry, in a solar spectrum, will be discussed.

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