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**Orientation and Grain Boundaries in Bulk Samples of Bi-2223**

**Phase.** MURAT ERDEM, OZGUR OZTURK, CABIR TERZIOGLU, IBRAHIM BELENLI, Abant Izzet Baysal University — In polycrystalline high- $T_c$  compounds the critical current densities are mostly limited by the grain boundaries. Their characterization is of significant importance to understand and improve the superconducting properties. In our work, superconducting  $\text{Bi}_{1.8}\text{Pb}_{0.35}\text{Sr}_{1.9}\text{Ca}_{2.1}\text{Cu}_3\text{O}_y$  samples were prepared by the standard solid-state reaction method. 20 samples were pressed in pellets and optimum annealing temperatures were found as  $835^\circ\text{C}$  for the first annealing and  $830^\circ\text{C}$  for the second annealing respectively. The optimum Between the first and second annealing procedure, the pellets are pressed piled up. After the second annealing, six bar samples were cut, three of them were perpendicular and the others parallel to the pressing surface. The transport  $T_c$  and  $J_c$  were measured using standard four-probe method. Micro structural examination of the samples was done using SEM. Degrading effect of the magnetic field on  $J_c$  is much more significant for the perpendicular sample. This is in agreement with literature and ensures that our samples had preferred orientation. We have proved that preferred orientation in bulk pellet samples of (Bi, Pb)-2223 phase can be achieved by the method described in this work. Orientation of the magnetic field with respect to grain boundaries may be an important issue for transport critical current values in applied magnetic fields.

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