

Abstract Submitted
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Current Progress in Fabrication of a 14 Tesla Nb₃Sn Dipole ED-DIE HOLIK III, CHRISTOPHER BENSON, KYLE DAMBORSKY, NICK DIACZENKO, TIM ELLIOTT, RAY GARRISON, ANDREW JAISLE, ALFRED MCINTURFF, PETER MCINTYRE, DIOR SATTAROV, Texas A&M University — The Accelerator Technology Laboratory at Texas A&M is fabricating a model dipole magnet, TAMU3, designed to operate at a 14 Tesla bore field. The dipole employs an advanced internal-tin Nb₃Sn/Cu composite strand with enhanced current density. The coils must be processed through a heat treatment after winding, during which the Sn within the heterogeneous strands diffuse into the Cu/Nb matrix to form high-performance superconducting layers. Heat treatment of the first coil assembly revealed tin leakage from the Sn cores that was caused by omission of a pre-anneal step in the heat treatment. We are evaluating the electrical properties of the coil, the microstructure and short-sample superconducting performance of cut-off samples of current leads to determine the extent of damage to the performance of the windings. Results of those tests and plans for construction of TAMU3 will be presented.

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