

Abstract Submitted
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Development of a new Process for Fabricating Bi-2212/Ag Round Wire¹ KYLE DAMBORSKY, FENG LU, PETER MCINTYRE, NATHANIEL POGUE, ELIZABETH SOOBY, Texas A&M University — Magnet technology required for the development of greater than 1 GHz NMR magnets, future hadron colliders, a proposed muon collider, and other applications above 25 T require a new generation of very high field superconducting wires. Presently, the only candidate material for manufacturing round wire in this operating range is Bi-2212/Ag composite conductor. Commercially available Bi-2212/Ag round wires are fabricated via a powder-in-tube (PIT) process which appears fundamentally limited by poor connectivity and a large degree of porosity after more than a decade of development. A modified jellyroll (MJR) conductor, designed to increase connectivity while decreasing porosity, is proposed for a new type of Bi-2212/Ag conductors. The method utilizes an oriented powder fabrication technique that allows the conductor to be constructed in a planar geometry, which is then wound to form a round wire for subsequent drawing and processing. The details of the fabrication process and preliminary results will be presented.

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