Abstract Submitted
for the TSF15 Meeting of
The American Physical Society

Construction of Next Generation Dipole Magnets JEFFREY BREITSCHOPF, Texas Lutheran Univ. — J.C. Breitschopf, P. McIntyre, R. Blackburn, T. Elliot, A. Dior, D. Chavez, J. Gerity – Currently, the most common method for construction of dipole magnets is to use Rutherford cable. This work focuses on a completely new design utilizing a cable-in-conduit (CIC) dipole in which liquid helium flows inside the superconducting CIC. The CIC design eliminates inherent flaws of traditional Rutherford dipole while at the same time, is comparable in cost to traditional dipoles. Along with theoretical design, actual superconducting CIC was constructed and tested to explore construction methods of the CIC di-poles. In addition, tooling was developed that allows for bending the CIC in to the required design forms.

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Date submitted: 12 Oct 2015 Electronic form version 1.4