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Evaluation of APC NbTi Superconductor in a Model Dipole Magnet

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Author

Scanlan, R.M.

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Evaluation of APC NbTi Superconductor in a Model Dipole Magnet* R.M. SCANLAN, A. LIETZKE, J. ROYET, C.E. TAYLOR and A.WANDESFORDE, Lawrence Berkeley Laboratory, Berkeley, CA, 94720 and J. WONG, and M. RUDZIAK, Supercon, Inc., Shrewsbury, MA, 01545, USA.

In an earlier paper (1), we reported on the construction and testing of a model dipole magnet, D-19, which utilized SSC type cable and an optimized design to reach a field in excess of 10 T at 1.8 K. We now report on the evaluation of a new conductor in a model dipole which utilized a similar design and is designated D-19B. This new conductor is based on an artificial pinning center (APC) fabrication approach, which has been scaled up to supply enough conductor for fabrication of a 1-m long model dipole. We will report on the results of magnet tests and compare the performance of the APC type superconductor with that of the conventional NbTi superconductor which was used in magnet D-19.

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¹ A 50 mm Bore Superconducting Dipole with a Unique Iron Yoke Structure, D. Dell'Orco, et.al., Paper LN-5, 1992 Applied Superconductivity Conf., Chicago, Aug.1992.

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Corresponding author: Dr. Ron Scanlan
Lawrence Berkeley Laboratory
1 Cyclotron Road, MS 46/161
Berkeley, CA 94720
USA
Telephone: (510)486-7241
Telefax: (510)486-5310
E-Mail: Scanlan@lbl.gov