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The Fabrication Technology and Test Results of the NbTi Superconducting Racetrack Magnet

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Superconducting racetrack shaped magnet has been fabricated successfully aiming at its application to superconducting undulator. The magnet was wound with NbTi superconducting wires by a method of dry winding followed by the vacuum pressure impregnation. First the single coil was fabricated and the critical current was tested in liquid helium. The critical currents of the six coils tested were in the range of 475A to 483A. Then the coil module which was connected in series was wound and tested in dewar in a method of conduction cooling. The coil module was charged to 400A and did not quench. From the results, the single coil and coil module connected in series have reached the designed operating current.

Keywords Superconducting Undulator·Racetrack-type magnet·Niobium titanium·Critical Currents·

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