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Development status of Nb₃Sn strand for FCC

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Superconducting wire having high critical current density (J_c) under high magnetic field (16T) is required for fabrication of dipole magnet for FCC project. Currently, Nb₃Sn wire is the most promising as a superconducting wire satisfying such a requirement, but in order to reduce amount and manufacturing cost, improvement of J_c is necessary. For this purpose, a preliminary development program of high J_c Nb₃Sn wire is in progress between CERN and KAT (Kiswire Advanced Technology Ltd.). In this study, we suggested three different designs which have Nb filaments with different size and number, and fabricated samples using the internal tin method. In addition, the effect of heat treatment schedule on J_c was investigated.

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