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Wed-Mo-Po.04-02: Design, Fabrication and Preliminary Test of the Bi2212 CICC Sample for High-field Applications

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The Cable-in-Conduit Conductor (CICC) is one of the core components in large-scale superconducting (SC) magnet systems, characterized by its multidisciplinary and technically complex nature. This paper investigated and developed a rectangular Bi2212 CICC to withstand high magnetic pressures in the CHMFL. Detailed analyses of its mechanical, stability, fabrication, and preliminary tests are presented. The Bi2212 CICC short-sample with 60 SC wires achieves nearly 40 kA at self-field. Test results demonstrate that the rectangular conductor, with low porosity (≤30%) and long twist pitch (stage-Ⅲ>145mm), still retains excellent performance even under large deformation with optimized aspect ratio. These findings highlight its promising potential for applications in high magnetic fields.
Index Terms—Design, Fabrication, Preliminary test, Bi2212, CICC.

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