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Wed-Af-Or1-01: Fabrication and test results of a canted cosθ dipole magnet using high-temperature superconducting CORC® wires

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High-temperature superconducting REBCO coated conductors have strong potential for high-field magnet applications. Significant technology gaps, however, need to be filled before we can fully leverage the conductor capability for future accelerator magnets. The U.S. Magnet Development Program is collaborating with conductor vendors to address this need. We report on the fabrication and test of the C3 magnet, a six-layer canted cosθ dipole magnet using high-temperature superconducting CORC® wires developed by Advanced Conductor Technologies LLC. We present the detailed test results of the C3 magnet at 77 and 4.2 K. We also discuss the addressed and open technical issues from the C3 magnet, and conductor development needs for future dipole magnets using high-temperature superconducting CORC® wires.

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