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## Development and test of a large-aperture Nb<sub>3</sub>Sn cos-theta dipole coil with stress management

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The stress-managed cos-theta (SMCT) coil is a new concept which was proposed and is being developed at Fermilab in the framework of US Magnet Development Program (US-MDP) for high-field and/or large-aperture accelerator magnets based on low-temperature and high-temperature superconductors. A 120-mm aperture two-layer Nb<sub>3</sub>Sn SMCT dipole coil has been developed at Fermilab to demonstrate and test the SMCT concept including coil design, fabrication technology and performance. The first SMCT demo coil was fabricated and assembled with 60-mm aperture Nb<sub>3</sub>Sn coil inside a dipole mirror configuration and tested separately and in series with the insert coil. This paper summarizes the design, parameters, and quench performance of the 120-mm aperture SMCT coil in a dipole mirror configuration.

### Footnotes

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