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20 T dipole magnet based on hybrid hts/lts cos-theta coils with stress management

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This paper presents the design concept of the dipole magnet with 50 mm aperture, 20 T nominal field and 13% margin based on a six-layer cos-theta (CT) hybrid coil design. Due to the high stresses and strains in the coil at high field, Stress Management (SM) elements are implemented in the CT coil geometry. The results of magnet magnetic analysis are presented and discussed. The key parameters of this design are compared with the parameters of similar magnets based on block-type and canted cos-theta coils.

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Footnotes

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