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Design of a Nb₃Sn 400 T/m quadrupole for the Future Circular Collider

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For the Future Circular Collider (FCC), a 100 TeV post Large Hadron Collider machine, 750 main quadrupoles with a gradient of around 400 T/m are required. This paper presents an electromagnetic design optimization of a double aperture Nb₃Sn quadrupole fulfilling the specifications, and, a structural design of a single aperture configuration towards a prototype.

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France, Finland, Switzerland

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