



MT 26
International Conference
on Magnet Technology
Vancouver, Canada | 2019

Contribution ID: 904

Type: **Poster Presentation**

Wed-Af-Po3.20-14 [66]: Magnet end shaping of the Future Circular Collider Main Quadrupole: optimization and validation

Wednesday, 25 September 2019 14:00 (2 hours)

In the frame of a collaboration agreement between CERN and CEA, the Main Quadrupole (MQ) design of the so-called Future Circular Collider (FCC) has to be investigated. So far, a 2D electromechanical design has been proposed in the FCC Conceptual Design Report [1,2]. Here, the FCC MQ design is further investigated through a 3D electromagnetic design. The integrated field quality over the magnet length is analyzed. In parallel, a small mock-up is set up in order to validate the 3D end design of the 2 layer magnet by means of a Nb3Sn cable very close in dimension to the final one and 3D printed end spacers. Layer jump curvature tests are reported, too.

[1] "Future Circular Collider Study. Volume 3: The Hadron Collider (FCC-hh) Conceptual Design Report", preprint edited by M. Benedikt et al. CERN accelerator reports, CERN-ACC-2018-0058, Geneva, December 2018. Submitted to Eur. Phys. J. ST

[2] C. Lorin et al. "Exploration of two layer Nb3Sn designs of the Future Circular Collider Main Quadrupoles", IEEE Transactions on Applied Superconductivity, vol 29, Issue 5, 4001005

Primary authors: LORIN, Clement (Université Paris-Saclay (FR)); Mr GENOT, Clément (CEA-Saclay - EN-SEM); TOMMASINI, Davide (CERN); Mr ROCHEPAULT, Etienne (CEA Paris-Saclay); FELICE, Helene (CEA Paris-Saclay)

Presenters: Mr ROCHEPAULT, Etienne (CEA Paris-Saclay); FELICE, Helene (CEA Paris-Saclay)

Session Classification: Wed-Af-Po3.20 - CCT Magnets and Field Quality of Accelerator Magnets