**Warm to cold correlations and other test results of the MQXFA Low-Beta Quadrupole magnets for the High-Luminosity Large Hadron Collider**

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The production of the MQXFA low-beta quadrupole magnets for the High Luminosity LHC (HL-LHC) is quite advanced with about 20 magnets cold tested in vertical cryostat. The MQXFA magnets are fabricated by the US HL-LHC Accelerator Upgrade Project (AUP) and are being used in the Q1 and Q3 Inner Triplet (IT) elements of the HL-LHC, whereas CERN is fabricating similar magnets for Q2a and Q2b IT elements.

These large-aperture, high-gradient quadrupole magnets are first-of-the-kind accelerator magnets introducing Nb3Sn conductor to High Energy Physics colliders. At this point of MQXFA production there is sufficient data to look at warm to cold correlations for the HL-LHC and for future use of Nb3Sn magnets in particle accelerators. Examples of warm-cold correlations discussed in this paper are: field quality (including the use of magnetic shims for low-order harmonics correction), magnetic length (correlation between coil physical lengths and magnetic length at nominal current), preload, magnetic axis and magnetic field angle. A summary of main test data will also be presented and discussed.

**A: Magnets for Particle and Nuclear Physics**

A01: Superconducting Accelerator Magnets