



Département des Accélérateurs, de Cryogénie et de Magnétisme

Séminaires du DACM

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Bat 130, pce 52 -- 7 à table + 3, CEA Paris-Saclay

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## **The HQ Program and Test results of HQ01 - a 120 mm 15 T Nb<sub>3</sub>Sn Quadrupole for the LHC Upgrade**

In support of the luminosity upgrade of the Large Hadron Collider (LHC), the US LHC Accelerator Research Program (LARP) has been developing a 1-meter long, 120 mm bore Nb<sub>3</sub>Sn IR quadrupole magnet (HQ). With a short sample gradient of 219 T/m at 1.9 K and a conductor peak field of 15 T, the magnet will operate under higher forces and stored-energy levels than that of any previous LARP magnet models. The first 6 coils (out of the 8 fabricated so far) have been assembled and used in two separate tests - HQ01a and HQ01b. In this talk, the HQ design parameters, assemblies, mechanical behavior and performance of HQ01a and HQ01b will be presented.