



Laboratoire d'Anecy-le-Vieux
de Physique des Particules

Stability issue

Superconducting final doublet at CLIC

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In2p3

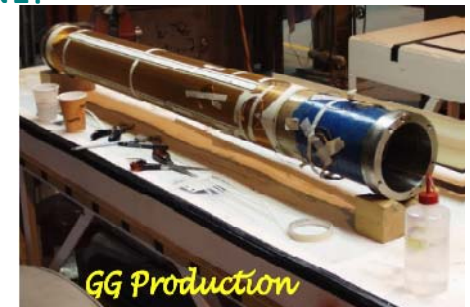


LAPP is working on CLIC

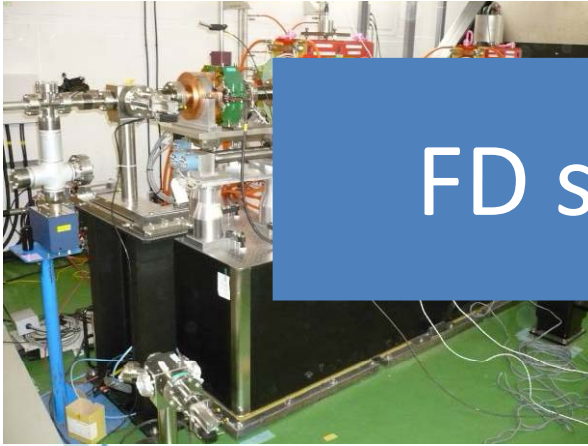
- CLIC Linac main beam active isolation under quad
- CLIC FF stabilisation/compensation
 - with ATF2 FD active stabilisation evaluation
 - with SC FD?
- Organisation:
 - part of the CLIC Technical Committee Claude Hauviller (CERN)
 - European financing EuCARD Andrea Jeremie (LAPP) stabilisation task coordinator
 - An integrated approach: stabilization elements to be taken into account at the design phase of CLIC components, ground motion characterization, sensors, actuators, alignment compatibility with beam dynamics

SC magnet steps

- Motivation: have an active stabilisation as planned in ILC and CLIC => need to evaluate the usefulness of an active system at ATF2 / **Benoit's work plan/soon** at **KEK LAPP/CERN/LAL/KEK**
- Need a magnet:
 - Test it with cryogenics/
 - **B.Parker/ BNL/ soon**
 - Measure vibrations with seismic and laser interferometry of cold mass movmmt.
 - **LAPP/CERN / at BNL? When magnet ready/ Oxford (Urner) at BNL?**
 - Identify vibration sources like GM, cryolines, acoustic
 - **LAPP/CERN / at BNL? When magnet ready**
- Design support:
 - With stabilisation/isolation **LAPP/BNL**
 - Cryoline isolation **CERN**
 - With compensation (multisensor/multicatuator vs single sensor/single actuator) **LAPP/UDS**
- How many FD magnets in same cryostat? **LAL/CERN/LAPP...**



Already achieved 0.13nm rms at 4Hz combining commercial isolation “x10”(CLIC table) and “single” compensation”x3” but in laboratory on a mock-up not in accelerator environment



FD stabilisation with larger L^*

- Technically FD support can be moved anywhere
- Current assumption: ground motion coherence length of 4m (Benoît will show new measurements at future ATF2 meeting), so QF1 and IP should not be separated by more than 4m
- If active stabilisation is implemented, then coherence is lost between IP and FD, so no more separation issue => Shintake monitor also on active stabilisation?

