

**WG 5 Accelerator Modules Experience in design, procurement, assembly, operation – Catherine Madec and Tom Peterson, co-conveners**

The conveners seek short (3~5 slides), specific contributions under the following SRF cryomodule topics. Topics are listed in order of our view of priorities. However, topics on which we focus will also depend on participants' interest and experience. Relevant poster contributions recycled from other venues are encouraged, as well as new recent results. We seek to stimulate active, informed discussion. Please contact Catherine Madec (catherine.madec@cea.fr) or Tom Peterson (tommy@fnal.gov) for contribution coordination.

**Tue., March 25th, 4.5 hours, 13:30 – 18:00**

1. Cryomodule transport and alignment. Modules are being assembled in laboratories or companies and then transferred, tested and installed in other institutes.
  - a. Tolerances of the alignment
  - b. Preserving the alignment of the string
  - c. Measuring it, when (before and after transport) and how
  - d. Tools for measurement (wire position monitors for cold test, any other tool/way).
2. Design and experience for CW operation and commissioning
  - a. Pressure fluctuations and cavity pressure sensitivity
  - b. Minimizing the cavity vibrations
  - c. Magnetic shielding
  - d. Design for high heat loads
  - e. HOM damping
  - f. Special cavity alignment constraints
3. Pressure standards compliance – procedures and experience
  - a. How laboratories are defining their operating pressure
  - b. What material properties in mechanical analyses, e.g., after niobium heat treatment does each lab re-qualify the material
  - c. Experience in practice, small quantities versus large-scale production
  - d. PED certification experience for the 3.9 GHz dressed cavities for XFEL
4. XFEL experience with mass production assembly at Saclay
  - a. What are the challenges, schedule drivers?
  - b. Any frequent QA issues (and remedies)?
  - c. What assembly tasks can be automated or otherwise optimized?
  - d. What QA/QC steps can be eliminated?
5. Tuner experience
  - a. Tuner reliability (request world-wide experience)
  - b. Piezo reliability, especially in CW operations (request world-wide experience and proposals for tests)
  - c. DESY/XFEL determination of cost/benefit for the selection of tuner/actuator system, risk mitigation, component tests
6. Other topics

- a. Cryomodule segmentation – reasons for segmentation decisions from projects (CW/pulsed)
- b. FNAL experience assembling CM2
- c. XFEL 3.9 GHz cryomodule design, which is entering into production now