

WG 1 Elliptical Cavity Production - Paolo Michelato and Akira Yamamoto, co-conveners

Tue., March 25th, 4 hours, 08:30 – 12:30

The conveners seek short (3~5 slides), specific contributions under the following topics regarding elliptical cavity production. Relevant poster contributions recycled from other venues are encouraged, as well as new recent results. We seek to stimulate active, informed discussion. Please contact Paolo Michelato (paolo.michelato-at-mi.infn.it) and/or Akira Yamamoto (akira.yamamoto-at-kek.jp) for contribution coordination.

1. Experience with Electron Beam Welding: reliability of process, typical problems during production. Repair procedures for defects and imperfections: non-penetrated welds, holes, splatters.
2. Welding of niobium for superconductive cavities using techniques other than EBW, such as laser welding
3. EP/BCP: analysis of results in term of stability, reliability of obtained performances. What is the “best” for the future, in terms of performances, cost and risk of failure and “bad” cavities? What is the reason of the scattering in the Q0 values? [Focus is experience, reliability, problems, performance, etc., to avoid overlap with WG8.]
4. Experience with the cavity tuning machine (CTM) during the series production of cavities for the European XFEL: operation and reliability issues.
5. RF measurement during series production. From Half Cells to the complete cavity. HAZEMEMA and Cavity Tuning machine. Experience about the correct frequency / correct length estimation. Use of RF measurements for the estimation of the etching rate at equator and iris during EP and BCP processes.
6. Vacuum issues during series cavity production. Vacuum system operation. Slow Pumping Slow venting systems. Vacuum plants and instrumentation reliability. Vacuum contaminants.
7. Alignment and mechanical issues for the serial production of EXFEL cavities: quality insurance strategy, 3D mechanical measurements, eccentricity measurements, transfer measurement.
8. Experience in production with helium vessel design confirmation and assembly directly related to the above alignment as well as high-pressure code handling, and also related the tuner assembly under various boundary conditions. [Possible overlap with WG5 to be juggled.]
9. Documentation for series cavities production as for the EXFEL. Requesting advice for new projects.