



Contribution ID: 143

Type: **Remote Parallel Session**

## Development of vertical electropolishing (VEP) for surface treatment of 9-cell Nb cavities at KEK

*Tuesday, 16 May 2023 10:45 (15 minutes)*

Installation of a vertical electropolishing (VEP) system for surface treatment of Nb cavities was just completed at KEK and started the test operation in December 2022. Although the horizontal EP (HEP) system has already been in operation for nearly 15 years at KEK, VEP system was adopted to process 9-cell Nb cavities, because of the simpler operational processes and the higher work safety. We have introduced some new equipment to overcome the technical issues of VEP, including Ninja cathode, cavity water cooling system, and two-flow system of the electrolyte solution. At this time, we have done one bulk EP (80  $\mu\text{m}$  polished at  $\sim 35$  V) and one fine EP (10  $\mu\text{m}$  at  $\sim 11$  V) without any major safety issues. The internal surface inspection of the treated cavities has confirmed the presence of the pits around the equator positions caused by hydrogen gas bubbles, and the introduction of a de-aeration mechanism for the electrolytic solution is under consideration.

**Primary authors:** Dr GOTO, Takeyoshi (High Energy Accelerator Research Organization (KEK)); HAYANO, Hitoshi (KEK); UMEMORI, Kensei (KEK); Prof. MONJUSHIRO, Hideaki (KEK)

**Presenter:** Dr GOTO, Takeyoshi (High Energy Accelerator Research Organization (KEK))

**Session Classification:** Accelerator: Superconducting RF

**Track Classification:** Accelerator: Superconducting RF