IPAC'23 - 14th International Particle Accelerator Conference



Contribution ID: 1316 Contribution code: WEPA168

Type: Poster Presentation

Removal of BCP defects for the 166.6 MHz HOM-damped quarter-wave srf cavities

Wednesday, 10 May 2023 16:30 (2 hours)

The compact 166 MHz HOM-damped quarter-wave superconducting cavities for HEPS have complex geometries, resulting in streak defects on the inner surface of the cavity after BCP etching. Surface areas with low flow velocity from fluid dynamics simulations coincide with defects observed on the cavity inner surface. Based on the 166 MHz cavity structure, an improved BCP setup with holes and discs was designed. The flow velocity at the defect locations was greatly increased, and defects did not reappear. An excellent cryogenic performance has been achieved in the subsequent vertical tests, indicating that the post processing of the cavity was successful. This paper presents the analysis, solution, and final results of BCP etching defects in the chemical processing of the 166.6 MHz srf cavity.

Funding Agency

This work was supported in part by the National Natural Science Foundation of China under Grant 12005241, and in part by High Energy Photon Source.

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: ZHANG, Xinying (Institute of High Energy Physics)

Co-authors: DAI, Jin (Institute of High Energy Physics); GUO, Lin (Institute of High Energy Physics); ZHANG, Pei (Institute of High Energy Physics)

Presenter: ZHANG, Xinying (Institute of High Energy Physics)

Session Classification: Wednesday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T07: Superconducting RF