

Heat Dissipation Mechanisms of Superconducting Cavities

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The heat dissipation mechanisms in superconducting cavities are investigated. Liquid helium is used to remove the heat generated in these cavities. The properties of liquid helium and its heat removal efficiency are discussed. When RF power is applied to a superconducting cavity, heat dissipation occurs on the surface due to the surface resistance of the niobium (Nb) before X-ray generation. After X-ray generation, heat dissipation plays an important role in electron acceleration and X-ray production. Q-slope measurements for superconducting cavities are presented as a function of the accelerating electric field, and the dissipated RF power is shown as a function of the accelerating field.

Paper submission Plan

Yes

Best Presentation

No

Contribution track

ICABU WG1. Accelerator Systems

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