

# Understanding Superconducting Cavities with the Least Action Principle

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The least action principle is applied to better understand superconducting cavities. This principle, which is fundamental to forces such as electromagnetic forces, is used to derive the equations of motion. By applying the least action principle, heat dissipation in superconducting cavities is analyzed. When RF power is applied to a superconducting cavity, heat dissipation occurs within the cavity. Quantum effects in superconducting cavities are also explored, with particular attention to the quantization of the quality factor.

## Paper submission Plan

Yes

## Best Presentation

No

## Contribution track

ICABU WG1. Accelerator Systems

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