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## **RF superconducting cavity and zero-temperature physical phenomena**

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

What happens when the temperature reaches absolute zero? Physical phenomena at the zero-temperature limit are studied in accelerator physics. The background temperature of the universe goes down as long as expansion goes on. The BCS resistance of a superconducting cavity is shown as a function of temperature at different frequencies. The surface resistance of the Nb superconducting cavity is reduced to residual resistance and flux-trapped resistance at 0 K. Blackbody radiation is stopped by heat radiation at 0 K. Thermal expansion and thermal diffusion become zero at 0 K. Black holes evaporate at 0 K.

### **Funding Agency**

### **Footnotes**

### **I have read and accept the Privacy Policy Statement**

Yes

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