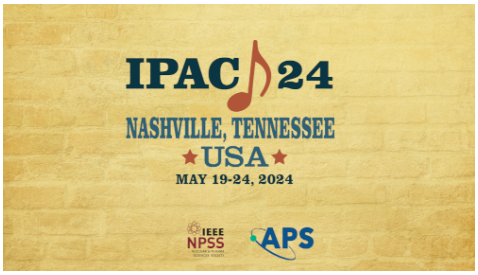

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On-line helium mass flow monitoring system for SRF cavities at 2 K

Wednesday, 22 May 2024 16:00 (2 hours)

The Helium Flow Monitor System developed by Jefferson Lab and Hyperboloid LLC is designed to measure the health of cavities in a Cryomodule in real-time. It addresses the problem of unhealthy cavities with low Q0, which generate excess heat and evaporation from the 2 K super-fluid helium bath used to cool the cavities. The system utilizes a unique meter that incorporates superconducting elements for high-resolution measurements of increased evaporation from the Cryomodule while the accelerator is operating. It can also measure individual Cavity Q0s when the beam is turned off. The Linux-based control system is an integral part of this device, providing the necessary control and data processing capabilities. The system was integrated with a LabJack A/D (analog-to-digital)and D/A (digital-to-analog) converter, which provides the necessary input and output capabilities for the system.

Footnotes

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