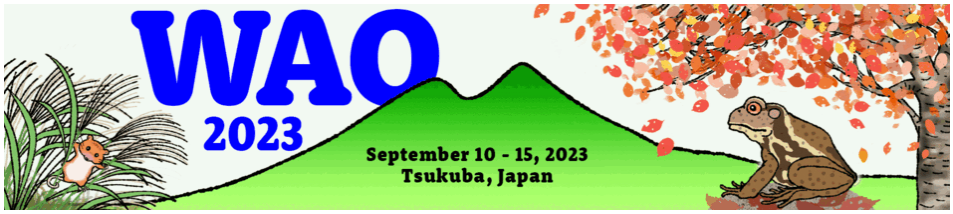

Contribution ID: **25** Type: **not specified**

OR25 - Helium Mass Flow Monitor

Friday, 15 September 2023 09:00 (30 minutes)

The SBIR funded Helium Mass Flow Monitor System, developed by Jefferson Lab (CEBAF) and Hyperboloid LLC, is designed to provide real-time measurements of cavity health (Q0) within a Superconducting Radio Frequency Cryomodule. The device uses a component made of superconducting material that is cooled by a 2 K super-fluid helium bath. By varying the current of the heater our superconducting material will become non-superconducting (quench). It is at the point of superconducting to non-superconducting which correlates to the Helium Mass Flow of the system (power dissipated in the cryomodule). The Linux-based control system is an integral part of this device, providing the necessary control and data processing capabilities. The interface monitors sensor voltage, heater current, and diode temperature. From the interface, measurements are carried out in a semi-automatic fashion. In unison, the flow meter and interface provide the ability to monitor the static & dynamic heat load of the CEBAF cryomodules. It will also give the ability to do rapid Q0 measurements without the need for a tunnel access.

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Session Classification: Innovative Solutions for Operations