

# LLRF Topical Workshop - Timing, Synchronization, Measurements and Calibration



Contribution ID: 10

Type: Poster

## Development of a Cavity Resonance Monitoring System for RAON SCL3

*Tuesday, 29 October 2024 16:40 (1h 50m)*

Recently the accelerator operation for user beam service are planned in 2024. The SCL3 RF operating frequency are 81.25 MHz and 162.5 MHz. All cavities are controlled independently for the acceleration of the various A/q ions. Because all RAON SCL3 cavities are the superconducting cavities and the planned beam current is not so high, the control bandwidth which is defined by the loaded Q of the power coupler are not so wide and the suppression of the microphonics is one of the important topics for the stable operation. There are a slow cavity resonance frequency drift caused by the long-term LHe pressure drift, fast cavity resonance frequency fluctuation caused by short-term LHe pressure variation or mechanical vibration transferred through the ground. It is required to measure the shifted cavity resonance frequency and to suppress such microphonics which affects the stable RF operation. We developed a cavity resonance monitoring system for RAON SCL3. The shifted cavity resonance frequency is measured and stored by the LLRF. Also a python based tool to transfer and to analyze this data is developed. In this presentation the status and test result of cavity resonance monitoring system for RAON SCL3 will be described.

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**Session Classification:** Poster Session II (Measurement and calibration)

**Track Classification:** Measurement and calibration