



## Real-time cavity simulator and tuner control system for the ITN cryomodule at KEK

*Tuesday 23 September 2025 14:30 (3 hours)*

At KEK, an International Linear Collider prototype cryomodule containing eight TESLA-type cavities is currently under development and is scheduled for testing in 2028. To evaluate the performance of the low-level RF (LLRF) system, a Red Pitaya-based cavity simulator is being developed. The simulator will also be used at the STF VT stand to support the development of the digital LLRF system, which is necessary for preparation of the Vertical Tests for the ITN CM cavities. Additionally, we are considering utilizing the Red Pitaya hardware platform to control the piezo of the cavity tuners for Lorentz force detuning (LFD) compensation. In this contribution the progress of the cavity simulator and tuner control are reported.

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

Yes

### Footnotes

### Funding Agency

**Author:** Dr BAJPAI, Rishabh (High Energy Accelerator Research Organization)

**Co-authors:** OMET, Mathieu (High Energy Accelerator Research Organization); Dr MATSUMOTO, Toshihiro (High Energy Accelerator Research Organization)

**Presenter:** Dr BAJPAI, Rishabh (High Energy Accelerator Research Organization)

**Session Classification:** Tuesday Poster Session

**Track Classification:** MC4: SRF Technologies