

# SP1: SRF single cavity controls

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We want to summarize the SRF single cavity controls with MTCA.4 electronics. Presented solution is based on the one MTCA.4 crate integrating both RF field control and piezo tuner control systems. The RF controls consist of Rear Transion Moduel (RTM) for cavity probes sensing and high voltage power source driving, Advanced Mezzanine Card (AMC) for fast data processing and digital feedback operation. The piezo controls have been equipped with high voltage RTM piezo driver and low cost AMC based FMC carrier. The first results from CW operation of the RF and piezo controls are demonstrated and briefly discussed.

## Summary

The SRF single cavity controls have been successfully demonstrated using single 9-cel XFEL cavity operated at CMTB in DESY. The RF field amplitude and phase stability of 0.001% and 0.1 degrees has been measured. The amplitude stability fulfils the requirements. The authors are planning to integrate additional control algorithms mainly for the phase stability improvement. The one of the possible future applications can be bERLinPro at HZB. The project goal will be the generation of a high current, CW electron beam. The LLRF control system will be built using the MTCA.4 technology. Due to the fact each cavity of the accelerator will be fed by its own RF power source the SRF single cavity controllls will be applied. All of the cavities will be equipped with a blade tuner which will be driven by a stepper motor for slow coarse tuning and four piezo actuators for a fast fine tuning.

**Author:** Dr PRZYGODA, Konrad (DESY)

**Presenter:** Dr PRZYGODA, Konrad (DESY)

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