

## **LLRF Automation for the European XFEL**

The European XFEL will host in total 25 RF stations to accelerate the electron beam to its target energy. A high level of automation is necessary for a reliable and stable machine operation. This contribution details different automation techniques, implemented as part of the LLRF system for cavity resonance and quality factor (QL) control, quench detection and prevention, and acceleration energy management. Implementation and tests have been done at FLASH, where most of these algorithms are permanent in operation. Recent results and long term integration strategy is going to be presented.

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