



Contribution ID: 1587 Contribution code: THPG66

Type: **Poster Presentation**

## Machine protection system for TEX facility

*Thursday, 23 May 2024 16:00 (2 hours)*

In the context of LATINO (Laboratory in Advanced Technologies for INnOvation) and Rome Technopole Projects founded by Regione Lazio and NextGenerationEu, and directly involved in the EuPRAXIA@SPARC\_Lab flagship project, a testing facility for X-band (TEX) has been established at the Frascati National Laboratories of INFN. TEX is dedicated to the examination of radiofrequency X/C-band, aiming to develop and test the technologies and systems of a particle accelerator operating under such conditions. Given the complex nature of such a system and the advancement of technology to the forefront of the state of the art, it is imperative to have an advanced Machine Protection System (MPS) characterized by high reliability, availability, and safety, in accordance with IEC-61508 standards. Currently in development is a prototype MPS designed to autonomously initiate procedures to control operations and avert anomalies. An EPICS supervisor oversees the management of all devices and monitoring connected subsystems. Additionally, a real-time interlock system, based on distributed FPGA, is employed to swiftly respond to vacuum and RF systems during the next RF pulse.

### Footnotes

### Funding Agency

NextGenerationEu

### Paper preparation format

LaTeX

### Region represented

Europe

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**Session Classification:** Thursday Poster Session

**Track Classification:** MC6: Beam Instrumentation, Controls, Feedback, and Operational Aspects:

MC6.T23 Machine Protection