Contribution ID: **442** Contribution code: **THPG15**                     Type: **Poster Presentation**

# Design and commissioning of a high-level control system for a medical isochronous cyclotron

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

MEDICYC (MEDical CYClotron) is an isochronous cyclotron dedicated to radiotherapy which was built and commissioned in Nice, France, in 1990 by a local team aided by experts from CERN. The cyclotron accelerates H- to a maximum energy of 65 MeV and uses stripping to extract a proton beam. Its primary purpose is treating ocular melanoma by protontherapy but a significant research activity is also present on beam-lines dedicated for this purpose.

An extensive refurbishment program of the cyclotron has been started to cope with the end-of-life and/or the obsolescence of several sub-systems. In this context, a new high-level cyclotron control system has been developed and implemented in 2021-2023. The primary responsibility of the system is the high-level coordination of the H- source, the RF system and the beam-line and cyclotron magnets to produce and deliver a beam with a given set of characteristics. A secondary responsibility is the collection, visualization and analysis of sub-system and beam data for monitoring and pre-emptive fault detection.

In this contribution, the control system software architecture is presented and the infrastructure on which the systems are deployed is laid out.

## Footnotes

## Funding Agency

## Paper preparation format

Word

## Region represented

Europe

**Primary author:** HOFVERBERG, Petter (Centre Antoine Lacassagne)

**Co-authors:** BERGEROT, Jean-Marc (Centre Antoine Lacassagne); BRUNEAU, Jean-Michel (Centre Antoine Lacassagne); TRIMAUD, Richard (Centre Antoine Lacassagne)

**Presenter:** BRUNEAU, Jean-Michel (Centre Antoine Lacassagne)

**Session Classification:** Thursday Poster Session