Contribution ID: **2256** Contribution code: **TUPM036** Type: **Poster Presentation**

First anomalies exploration from data mining and machine learning at the ARRONAX cyclotron C70XP

Tuesday, 9 May 2023 16:30 (2 hours)

The cyclotron C70XP of the Interest Public Group ARRONAX is regularly producing radio-isotopes for medical and research purposes. To support these productions an internal data network based on EPICS has been deployed, extending the collection of data on the accelerator components and, beam and technical diagnostics. With the accumulation of the new data, a study program is being addressed focusing on the application of data mining and Machine Learning (ML). ML Algorithm, e.g. clusterisation such as density-based spatial clustering of applications with noise or isolation forest, are used to explore the capacity to highlight anomalies for long runs with two extreme temporal cases. First explored approaches and results are presented in this paper as well as the robustness of the algorithms, which are investigated using dedicated methods (indices or iterations).

Funding Agency

work supported by grants from the French National Agency for Research, Arronax-Plus n°ANR-11-EQPX-0004, IRON n°ANR-11-LABX-18-01 and Next n°ANR-16-IDE-0007

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: POIRIER, Freddy (Cyclotron ARRONAX)

Co-authors: LASSALLE, Charly (Cyclotron ARRONAX); MATEUS, Diana (Laboratoire des Sciences du Numérique de Nantes); RIOULT, Julien (Cyclotron ARRONAX)

Presenter: POIRIER, Freddy (Cyclotron ARRONAX)

Session Classification: Tuesday Poster Session

Track Classification: MC4: Hadron Accelerators: MC4.A13: Cyclotrons