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Exploratory investigation into the causes of beam instabilities using Machine Learning

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

At iThemba Laboratory for Accelerator Based Sciences (LABS), particle beams are pre-accelerated in a K8 injector cyclotron and further accelerated in a K200 Separated Sector Cyclotron. The accelerated beams are transported to various target stations, including targets stations used for radionuclide production and fundamental subatomic physics research. All along the trajectory of the beam path, from the ion source to the target station, the beam is prone to various instabilities. Finding the root cause of such instabilities can be an arduous task. With the rapid progress in Machine Learning (ML) algorithms new possibilities exist to narrow down and even identify the sources of such beam instabilities. During this presentation some preliminary results will be presented on using the signals from non-destructive diagnostics and ML to locate the sources of beam instabilities.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

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