Contribution ID: **41** Type: **Poster**

Non-invasive, real-time diagnostic development at FACET-II

Challenges for future accelerators include characterization of high current beams and the need for continual drift correction while delivering beams with non-trivial phase space correlations. Concomitantly, there is potential for Artificial Intelligence/Machine Learning to improve beam quality, increase delivery time to users and enable exotic beam configurations. Non-invasive diagnostics allow measurement of high-current beams that would destroy any intercepting materials as well as monitoring and manipulating a beam from source to user without interruption. Real-time diagnostics allow AI/ML algorithms to respond to on a shot-by-shot basis to drift and automate configuration changes during experiments. We report here on a non-invasive, real-time diagnostic based on edge radiation interference under development at FACET-II. We show data from a first implementation as a virtual diagnostic as a non-destructive measurement of emittance.

Primary authors: O'SHEA, Brendan (SLAC National Accelerator Laboratory); Dr WATT, Robbie (SLAC National Accelerator Laboratory)

Presenter: O'SHEA, Brendan (SLAC National Accelerator Laboratory)

Session Classification: Poster