Contribution ID: **589** Contribution code: **THPM021** Type: **Poster Presentation**

Enhancing ALS injector performance through data analysis

Thursday 5 June 2025 15:30 (2 hours)

This study presents a data-driven methodology aimed at enhancing the performance and reliability of the injector at ALS. We show a data acquisition system for capturing and analyzing the parameters affecting the injection process to find patterns and improve reliability. We analyze the recorded injection parameters to find key correlations and patterns within the multidimensional parameter space, gaining insights into injector dynamics and potential areas for optimizing the injection process. Furthermore, we present first steps towards a parametric digital twin of the ALS injector based on the recorded data to enable more precise predictions of injector behavior, facilitate rapid troubleshooting, and support the development of advanced control strategies.

Footnotes

Paper preparation format

LaTeX

Region represented

America

Funding Agency

Author: HELLERT, Thorsten (Lawrence Berkeley National Laboratory)

Co-author: SULC, Antonin (Helmholtz-Zentrum Berlin fuer Materialien und Energie GmbH)

Presenter: HELLERT, Thorsten (Lawrence Berkeley National Laboratory)

Session Classification: Thursday Poster Session

Track Classification: MC6: Beam Instrumentation and Controls,Feedback and Operational Aspects: MC6.T04 Accelerator/Storage Ring Control Systems