

ML-based control and optimization of DLA experiments

Monday 18 March 2024 10:00 (30 minutes)

The experimental complexity of DLA experiments increases with increasing structure length and the utilization of more complex laser pulse shapes, such as pulse front tilts. Consequently, the experiments involve many parameters demanding careful control and optimization. Previous studies have demonstrated the efficacy of machine learning (ML) in enhancing the performance of conventional accelerators. In this presentation, I will introduce our research project funded by the BMBF, which aims to implement a machine learning-based control system. This system is designed to reconstruct, analyze and optimize the laser pulse shape used for DLA experiments at ARES, leveraging electron beam diagnostics after the DLA interaction.

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