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OR11 - Beam Based Alignment of the LCLS-II Injector Solenoid

Wednesday, 13 September 2023 16:30 (30 minutes)

“Solenoid focusing can be used to compensate for space charge induced emittance growth at low beam energies. However, misalignment of the solenoid field with respect to the beam trajectory will introduce steering effects and poor emittance compensation.

I will present a scheme for the beam-based measurement of solenoid misalignments, using matrix expressions for transport through a rotated, translated solenoid. I will also present results from simulation to estimate the size of the misalignment effect on emittance growth. Finally, I will present results from measurements taken at the LCLS-II injector.”

Presenter: OSMAN, Ahmed (SLAC)

Session Classification: Beam Diagnostics