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Multi-objective optimisation of the Diamond-II storage ring optics

Monday 2 June 2025 16:00 (2 hours)

The design performance of the 3.5 GeV Diamond-II low-emittance electron storage ring has been studied as a function of the linear and nonlinear lattice tuning parameters. A Multi-Objective Genetic Algorithm (MOGA) has been implemented to optimise both the beam lifetime and the injection efficiency for off-axis injection. The simulations have been run on 5 machine error seeds, including misalignment and field strength errors, to obtain a solution which is robust against machine imperfections. The results of the optimisation are presented alongside a comparison of the baseline performance.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

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