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Progress towards conceptual design for the AS2 lattice

Monday 2 June 2025 16:00 (2 hours)

Significant progress has been made on the lattice design for the next-generation Australian Synchrotron storage ring. The lattice has changed from a 7BA to a 6BA to improve the suppression of higher-order resonance driving terms due to sextupoles. Octupole magnets were introduced in non-dispersive regions to control amplitude-dependent tune shifts. The parameters of the unit cell were investigated in a systematic way and a set of values that optimises the lattice performance emerges from the results. The dynamic aperture and Touschek lifetime were maximised by tuning the non-linear optics using a multi-objective genetic algorithm. Multiple girder arrangements were investigated with the inclusion of realistic lattice errors and simulated correction procedure.

Footnotes

Paper preparation format

LaTeX

Region represented

Asia

Funding Agency

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