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Employing octupole magnets for nonlinear optimization of Iranian Light Source Facility storage ring

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Limited dynamic aperture which is in the consequence of strong nonlinearities in a low emittance storage ring, is a challenging issue from beam dynamics point of view. In the present study, we have applied three families of focusing and defocusing octupoles to the storage ring lattice with the aim of increasing dynamic aperture and beam lifetime. We have discussed different methods to optimize of the position and strength of octupoles so that each octupole family fights a specific resonance driving term.

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Footnotes

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Yes

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