

GFA & SwissFEL Accelerator Seminar

Status of HEPS storage ring design

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Yi Jiao, IHEP, China

The High Energy Photon Source (HEPS), a green-field diffraction-limited storage ring light source, with a circumference of about 1.3 kilometers, a beam energy of 6 GeV and a natural emittance of a few tens of pm.rad, is to be built in Beijing and now is under design. I will report the present nominal storage ring design for the HEPS based on the 'hybrid multi-bend achromat (MBA)' and global optimization of both the linear and nonlinear physics of such a hybrid MBA lattice using an iterative implementation of MOGA (multi-objective genetic algorithm) and PSO (particle swarm optimization) algorithms. Related physical issues, like alternative designs, the limiting effect of half integer resonances on the available momentum acceptance and collective effects in HEPS, will also be introduced.

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