MATTER AND TECHNOLOGIES

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Application of three families of sextupoles at the KARA ring of Karlsruhe Institute of Technology

Three families of sextupole magnets have been recently incorporated at the KIT storage ring KARA (Karlsruhe Research Accelerator). Computer studies of beam dynamics were performed with an objective to estimate benefits of operation with three sextupole families. An objective of simulations was to estimate merit of new configuration of ring lattice and possibility to control slope of momentum compaction factor as function of energy offset of particles in a bunch. Minimization of second order term of momentum compaction factor would allow to shorten bunch length to less than 2 ps by further reduction of alpha. Simulations have been bench-marked on existing experiments at Metrology Light Source (MLS) in Berlin (Germany) and SOLEIL (France). A computer model of KARA ring was used to predict behavior and the dynamics of beam as well as expected settings of sextupoles.

Speed Talks

Normal

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