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Designing an ultra-low emittance electromagnetic lattices for Iranian Light Source Facility storage ring

E Ahmadi^{1,2}, S M Jazayeri², J Rahighi¹, M Mollabashi² and F Saeidi¹

1. Institute for Research in Fundamental Sciences (IPM), Iranian Light Source Facility (ILSF), Tehran, Iran
2. Department of Physics, Iran University of Science and Technology, Tehran, Iran

E-mail: i.ahmadi@ipm.ir

Abstract

Storage rings are extensively used for particle colliders, damping rings and light sources. To further increase the luminosity at the colliders or brightness of a synchrotron light sources, the emittance of accelerator beam is being continually pushed downward in storage rings. In this paper, we investigate the lattice design for the storage ring of Iranian Light Source Facility (ILSF) with an ultra-low emittance of 0.27 nm-rad, intermediate energy of 3 GeV and storage ring circumference of 528 m. In this design, the base line for installing adjuncts is based on 20 straight sections with the length of 7 m.

Keywords: storage ring, emittance, electromagnetic lattice

For full article, refer to the Persian section