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Study of gas bremsstrahlung for 3 GeV electron storage ring using FLUKA Monte Carlo code

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The Iranian Light Source Facility, ILSF, is under design as a 3 GeV synchrotron light source. The storage ring of ILSF with a 528 m circumference and NEG-coated vacuum chamber is used to achieve the desired vacuum level. In this paper, the monitoring system for gas bremsstrahlung radiation from the storage ring is studied. Gas bremsstrahlung is produced when the stored electron beam interacts with residual gas molecules in a storage ring vacuum chamber. The simplified geometry of the gas bremsstrahlung detector consists of a scintillator, an aluminum holder, and a lead sheet. This geometry is used in the FLUKA simulation package to study gas bremsstrahlung production in SR and its interaction with the detector.

Footnotes

Funding Agency

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Yes

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