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Abstract

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An algorithm for computer simulation of undulators and wigglers

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Abstract

An algorithm for generating ray ensembles that simulate synchrotron radiation from magnetic insertion devices is described. The ray ensembles include polarization properties of emitted radiation and take into account the beam emittance parameters. The algorithm is applicable to a large class of magnetic insertion devices that meet general symmetry conditions. The general algorithm is supported by both formal derivation and comparison of computational results with published data. Questions of programming and computational economy are addressed and the essential similarities and differences with alternate studies are identified.

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