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Title

Formation of the transverse field structure in terahertz planar free-electron lasers

Source

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Abstract

The formation of a transverse structure of the field in terahertz free-electron lasers with a two-mirror Bragg resonator based on the open planar waveguide is analyzed. It is shown that the combination of diffraction effects with radiation channeling effects produced by sleeve electron bunches ensures spatial coherence of the field structure in the relevant coordinate for high values of the Frenkel parameter. The diffraction loss in this case is small on the scale of the power of radiation passing through the mirrors. (10 References).