

## Channeling 2018



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# On Amplification of Radiation from a Charged Particle Circulating around a Cylinder

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The radiation from a charged particle uniformly rotating around an infinitely long cylinder made of composite material is investigated. For the dielectric function of the cylinder we use the generalized Drude-Lorentz-Sommerfeld formula. The study is based on the exact solutions of the Maxwell equations. The dispersion of electromagnetic waves inside a cylinder is taken into account. It is shown that the charged particle can generate powerful radiation if rotates around a cylinder at a specific resonant frequency, which is determined by the parameters of the cylinder.

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