

Channeling 2018



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Generation of Surface Polaritons in Dielectric Cylindrical Waveguides

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We investigate the radiation of surface polaritons by a charged particle rotating around a dielectric waveguide. General case is considered when the waveguide is immersed in a homogeneous medium. For the evaluation of the corresponding electromagnetic fields the electromagnetic Green tensor is used. A formula is derived for the spectral distribution of the radiation intensity for surface waves. It is shown that these waves are radiated on the eigenmodes of the dielectric cylinder.

The geometry under consideration is of interest from the point of view of generation and transmitting of waves in waveguides, a subject which is of considerable practical importance in microwave engineering and optical fiber communications.

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