

Channeling 2018



Contribution ID: 61

Type: Poster

Radiation from a Dielectrically Loaded Waveguide with Open End

Monday, 24 September 2018 18:40 (1 hour)

In this report, we study electromagnetic field produced by a charged particle bunch exiting an open-ended circular waveguide with dielectric filling placed inside collinear vacuum waveguide of a larger radius. We suppose that the bunch is prolonged along its trajectory and negligibly thin in the orthogonal direction. Based on the previously developed theory, we mainly investigate Cherenkov radiation generated in dielectric section and penetrated vacuum regions of the structure due to the diffraction mechanism. We pay the main attention to the case of a train of short bunches resulting in high-order Cherenkov modes excitation. We also develop analytical procedure allowing performing the limiting process to the case of infinite radius of the outer waveguide.

Primary author: Dr GALYAMIN, Sergey (Saint Petersburg State University)

Co-authors: Dr TYUKHTIN, Andrey (Saint Petersburg State University); Dr VOROBEOV, Viktor (Saint Petersburg State University)

Presenter: Dr GALYAMIN, Sergey (Saint Petersburg State University)

Session Classification: PS1 - Poster session