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Radiation of a Bunch in a Waveguide with a Semibounded Anisotropic Dielectric

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Investigation of the field of a particle bunch in a waveguide loaded with dielectric is important for the wake-field acceleration technique and for other problems in the accelerator physics. Problems of producing high acceleration fields bring to study more effective methods, for example, with using anisotropic materials. Here we study the dielectric anisotropy influence on radiation of a bunch in a dielectric loaded waveguide with a transversal border. We investigate two instances: the bunch flies from a vacuum into the dielectric and, inversely, from the dielectric into a vacuum. We make a comparison with the analogous problems with isotropic dielectric.

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