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Angular distribution of coherent Cherenkov radiation from a tilted bunch passing through a slit in target

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We considered coherent Cherenkov radiation (CChR) produced by a tilted bunch passing through a slit in a dielectric slab. For a chosen dielectric susceptibility ε =1.3 the resulting CChR propagates from a target bulk to vacuum at the angle θ ch=32.6°. The azimuthal asymmetry in CChR angular distribution was calculated and shown that difference of yields for azimuthal angles φ =0° and φ =180° is enhanced two orders of magnitude. The maximal CChR intensity yield at the angle θ ch is achieved for the same value of the bunch tilt angle.

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