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Cherenkov Radiation from the Target with Predetermined Dielectric Properties, Produced Using 3D-Printer

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Most targets from natural and industrial materials, used for Cerenkov radiation (ChR) generation have a refractive index in millimeter wavelength region n>1.4. It is often a problem to output the radiation from such cylindrical or planar targets because the angle of incidence of ChR on the outer surface of target is greater than the angle of total internal reflection. In this report we present the solution of this problem by usage of 3D-printer for preparation of targets with predetermined dielectric properties. We demonstrate the output of ChR of relativistic electrons from the flat target with the refractive index n=1.29.

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