

DIFFRACTION AND VAVILOV-CHERENKOV RADIATION AS A NOVEL SOURCE OF THZ RADIATION

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Diffraction and Cherenkov radiation of relativistic electrons from a dielectric target has been proposed as mechanism for production of intense terahertz (THz) radiation in the forward direction. The use of an electron beam of a 4th generation light source appears to be very promising. A moderate power from the electron beam can be extracted and converted into THz radiation with nearly 100% efficiency. The initial experiment on THz observation will be performed at CLARA/VELA FEL test facility to demonstrate the principle to a wider community and to develop the radiator prototype. In this poster, we present our theoretical predictions (based on the approach of polarization currents), which provides the basis for interpreting the future experimental measurements. We will also present our hardware design and discuss a plan of future experiment.

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