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Diffraction Radiation for 2D Transverse Beam Size Diagnostics

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In this report, we suggest a new type of target capable of advanced beam diagnostics. The target is a screen with 5 holes in it: one in the centre and 4 are at the corners of a rectangle. As the rectangle's sides differ, the radiation will contain information about two beam sizes, which opens the possibility to detect two transversal beam sizes simultaneously. To describe the radiation we developed a DR theory for the case of off-axis passage of electrons through central hole in the screen with. In the limiting case the expressions coincide with those obtained by M.L. Ter-Mikaelian.

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