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## Conical Effect in Optical and X-Ray Diffraction Radiation

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In this work we consider the radiation from a thin target in X-Ray, optical and lower frequencies regions for two cases: the particle moves in the plane which is perpendicular to the screen; the particle moves in plane which is parallel to the screen. It is the geometry that is important for calculating of horizontal divergence of the bunch. We give analytical description of diffraction radiation. In particular, we obtain the expressions for the spectral-angular distribution and analyse them. It is shown that the radiation for these two orientations of the target is different mainly in direction of mirror reflection to the trajectory of the particle. We derive the condition for obtaining the maximal intensity of radiation and show that if the particle moves at constant distance from the edge of the target and at some angle to the target edge, then the radiation is distributed over a cone surface. This effect is common for cases where the existence of the target edge is important for generation of radiation. For example, the similar effects should arise for transition radiation when the particle crosses the target near its edge.

**Primary authors:** Dr TISHCHENKO, Alexey (National Research Nuclear University "MEPhI"); Ms SERGEEVA, Darya (National Research Nuclear University "MEPhI")

**Co-author:** Prof. STRIKHANOV, Mikhail (National Research Nuclear University "MEPhI")

**Presenter:** Ms SERGEEVA, Darya (National Research Nuclear University "MEPhI")

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