



Contribution ID: 99

Type: **not specified**

## **Coherent X-ray Cherenkov and Transition Radiation at Bunch Oblique Incidence on a Target as X-ray Source**

*Thursday, 27 September 2012 19:36 (1 minute)*

Polarization radiation from a relativistic charged particles bunch is considered at its oblique incidence onto amorphous target. The spectral-angular characteristics of both Cherenkov and transition radiation are explored at the X-ray frequencies. It is shown that for forward radiation the peaks both transition and Cherenkov (near the absorption lines) exist, whereas for backward direction there are only transition radiation peaks. The coherence effects and their dependence on the form of bunch, energy of the charged particles, the radiation wavelength are discussed. The analysis is made mainly for so called "water window" frequencies domain (energy of the radiation quanta are 284 –543 eV, the wavelength 4.47 –2.36 nm) that is of the most interest in the soft X-rays for practical applications in physics, biology and medicine. However, the results obtained are correct for much more wide frequencies range. It was demonstrated that coherence effects are very sensitive to the effects of radiation refraction on the target surface, and, consequently, to the surface shape.

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**Session Classification:** PS2 Poster Sesion

**Track Classification:** Poster Session