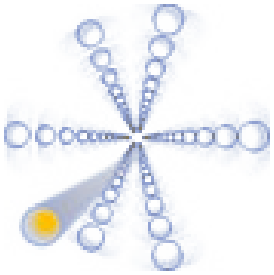

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Multiphoton Effects in Channeling Radiation

Monday, 6 October 2014 15:15 (15 minutes)

Multiphoton spectra for channeling radiation are calculated based on techniques developed in [1], with the addition of averaging over charged particle impact parameters posterior to the calculation of the radiation straggling. Cases of planar and axial channeling in harmonic wells are considered, for which high photon multiplicity approximations for channeling radiation spectra are derived. The corresponding spectral shapes are drastically different from Gaussian. Comparison with experiments [2,3] is made. A method for estimation of the fraction of channeled particles by their radiation spectra is proposed.

[1] M.V. Bondarenco, to be published in Phys. Rev. D.

[2] D. Lietti et al., NIM B 283 (2012) 84.

[3] M.D. Bavizhev, Yu.V. Nil'sen, and B.A. Yur'ev, Zh. Eksp. Teor. Fiz. 95 (1989) 1392 [Sov. Phys. JETP 68 (1989) 803].

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