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Volume Reflection Dependence on the Interplanar Potential

Tuesday, 25 September 2018 16:00 (15 minutes)

The analytic theory of volume reflection of fast charged particles in a bent crystal [1] is generalized to the case of an arbitrary interplanar potential shape. The mean deflection angle and the angular distributions for positively and negatively charged volume reflected particles are derived, with simplifications occurring under condition R»R_c. Cases of crystal orientation (110) and (111) are compared. An interpretation for the effect of deflection to the side opposite to that of the crystal bending is offered, from the viewpoint of the non-inertial reference frame related with the bent crystal.

[1] M.V. Bondarenco, Phys. Rev. A 82 (2010) 042902.

Primary author: Dr BONDARENCO, Micola (Kharkov Institute of Physics and Technology)

Presenter: Dr BONDARENCO, Micola (Kharkov Institute of Physics and Technology)

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