

DFG project “Pilot Study of a Crystal-based Extraction for 6 GeV Electrons at DESY” (2024-2025)

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- The main objective is the study and optimization of the deflection mechanism in order to efficiently extract electrons from the beam halo for secondary particle beam generation, which could be applied for the DESY II Test Beam Facility.

List of publication

1. S.P. Fomin, I.V. Kyryllin, M.S. Malovytsia, S.M. Shulga, G. Kube, A. Novokshonov, S. Strokov, A. Fomin. Influence of multiple scattering on bremsstrahlung by relativistic elec-trons in a thin oriented crystal. Probl. Atom. Sci. Tech. 2025. Vol. 157. №3. P. 30–36.
2. I.V. Kyryllin. Study of the dependence of the relative probability of close collisions of nega-tively charged particles with atoms of a bent crystal on crystal orientation. Probl. Atom. Sci. Tech. 2025. Vol. 157. №3. P. 26–29.
3. V.I. Truten'. On the influence of channeling of high-energy electrons on the spectral properties of their radiation in a crystal. Probl. Atom. Sci. Tech. 2025. Vol. 157. №3. P. 44–46.
4. I.V. Kyryllin. Selection of optimal bent crystal parameters for extracting electrons from the DESY II synchrotron. Proceedings of the XXIII Conference of High Energy Physics and Nuclear Physics, April 8–10, 2025 Kharkiv, Ukraine. P. 51–53.
5. S.V. Trofymenko I.V. Kyryllin. High-energy positron ionization loss spectra in a silicon crystal at various incidence angles with respect to a crystalline axis. Proceedings of the XXIII Conference of High Energy Physics and Nuclear Physics, April 8–10, 2025, Kharkiv, Ukraine. P. 48–50.
6. M.V. Bondarenco, N.S. Moskvitin. Truncated Coulomb potential for planar channeling. Phys. Rev. B 110 (2024) 205205.
7. S.V. Trofymenko. On ionization loss distribution of relativistic particles in thin detectors. Probl. Atom. Sci. Tech. 2024. Vol. 153, №5. P. 49-53.
8. I.V. Kyryllin, Romagnoni M., Canale N. et al. Crystal assisted steering of muons and anti-muons at the muon collider. Nucl. Instrum. Methods Phys. Res. A 1075 (2025) 170385.
9. I.V. Kyryllin, G.D. Kovalenko. On the possibility of using straight and bent crystals for charged particle beam steering at the future multifunctional accelerator complex of NSC KIPT. Probl. Atom. Sci. Tech. 2024. Vol. 153. №5. P. 43–48).
10. S.V. Trofymenko, I.V. Kyryllin. Evolution of high-energy positron ionization loss spectra in a Si crystal with the change of its orientation from axial to planar. Eur. Phys. J. C. 2025. Vol. 85. P. 682 (1–10).
11. M.V. Bondarenco. Semiclassical transmission through a curved pointed potential barrier. J. Phys. A (2025) 122511 (1-13).