

Study of Polarization X-Ray Bremsstrahlung of Fast Electrons in Medium with Different Microstructure*, S. BLAZHEVICH, N. NASONOV, BGU; S. ALIMOV, A. CHEPURNOV, O. CHUBAROV, V. GRISHIN, B. ISHKHANOV, V. PETUKHOV, V. SHVEDUNOV, NPI MSU -

Polarization radiation (PR) is a sort of electron bremsstrahlung generated by fast electrons in a medium due to their interaction with atomic shells. PR has very important peculiarities in the most interest for different applications region of X-ray radiation with photon energies 1-10 keV: here PR acquires a collective character and its integral power becomes equal to the ordinary bremsstrahlung one and is almost isotropic. Theoretical and experimental studies revealed the dependence of PR on density and micro structure (amorphous, polycrystal) of medium. Experimental measurements have been performed utilizing the continuous beam of 1.2-MeV electrons under 45 and 90 degree observations with respect to the beam axis using two detector of different types (gas proportional and Si(Li) ones). Diverse light materials of different structure were employing as targets. This permitted to obtain the various energetic and angular spectra. The program of application of PR for material diagnostic is discussed.

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