THE SIMULTANEOUS OBSERVATION OF A CHANNELING RADIATION AND COHERENT BREMSSTRAHLUNG FROM SINGLE CRYSTALS

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We present the results of investigation of gamma radiation spectra generated by an electron beam with initial energy $E_0 \sim 1.2$ GeV in diamond and silicon single crystals, under conditions when the simultaneous apprearance of two types of radiation is possible: coherent bremsstrahlung and channeling or above-barrier radiation. It is possible under condition when electrons move in parallel to densely packed crystal planes under angles to the crystal axis more than the critical channeling angle. At the same time, these angles should be such that the coherence length for photons with energy close to the initial energy of electrons be less than the distance between atom strings of the crystal along the direction of movement of electrons.