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The manifestation of the band structure in the photon emission spectrum of the fast above-barrier oriented particle

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The calculation of the quasi-Bloch energy spectrum of the oriented fast charged particle entering the crystal at an angle substantially greater than the Lindhard angle is performed. It is shown that the band structure with the presence of allowed and forbidden bands completely preserved during the passage of fast charged particles high above the crystal potential. The processes of the photon generation by the quantum crystal-oriented particle entering into the crystal at an angle substantially greater than the Lindhard angle are considered. The probability of the photon excitation by the quantum above-barrier channeled particle is calculated. It is proved that all of the essential features of the above-barrier band structure manifest themselves as the components in the emission spectrum of the crystal-oriented fast charged particle.

Summary

All of the essential features of the above-barrier band structure manifest themselves as the components in the emission spectrum of the crystal-oriented fast charged particle

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