COMPARISON OF THE QUANTUM AND CLASSICAL CALCULATIONS OF FLUX DENSITY OF (220) CHANNELED POSITRONS IN SI CRYSTAL

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The flux-peaking effect (FPE) of channeled particles is one of the known orientation effects at channeling [1].

In this work we investigated the conditions that necessary to observe of FPE at (220) planar channeling of 255 MeV positrons in thin Si crystals. For the FPE description of channeled positrons the numerical calculation of flux dynamics were performed in the frame of quantum and classical description. Comparison of results of quantum and classical calculations were performed. The results obtained by the two methods reveal a good correlation. In particular the number of probability densities peaks of positrons in case of quantum description coincide with number of spatial distribution peaks for classical description.

References
[1] G.V.Dedkov, A.M.Kumakhov, M.Z.Sokhov. Radiation Effects, (1983) **71**, 3, 261

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