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Accumulation of Thermal Neutrons

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In the work [1] it was first observed the phenomenon of the full pumping of thermal neutron beams from transmitted direction to the reflection direction from the reflecting atomic planes ($10\bar{1}1$) of single quartz crystal in the Laue geometry under the influence of the temperature gradient. In [2] considered theoretically the problem of diffraction of the neutron beam in single crystals under the influence of acoustic vibrations and temperature gradient in the Laue geometry. A good agreement between theoretical calculations and experimental results was observed.

In this paper we consider the possibility of accumulation of thermal neutrons using the phenomenon of complete transfer of thermal neutron beams in the direction of reflection under the influence of acoustic fields. Estimates show that it is possible to accumulate neutrons, increasing the intensity of the 2-3 order.

[1] A.R. Mkrtchyan, L.A. Kocharyan, M.A. Navasardyan et al. Izvestia NAN Armenii, Fizika, , Vol. 21, No. 5, 287-289, 1986.

[2] A.R. Mkrtchyan, R.G. Gabrielyan, O.A. Hunanianand et al. Izvestia NAN Armenii, Fizika, Vol. 21, No. 6, 313-316, 1986.

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