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PS2-11: Source of Circularly Polarized, Monoenergetic X-Ray Photons

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The problem of the radiation of channeled positron beam in a system nanotubes is solved. The polarization of the medium imposes a ban on the value of the beam energy for the formation of radiation. The energy threshold increases with increasing amplitude of the oscillations of positrons. The case is considered when the beam energy coincides with the threshold energy for the maximum amplitude of the oscillations of positrons. The formula is derived for the spectrum of the total number of emitted photons. Due to the symmetry of the problem with respect to the azimuthal angle, the beam of circularly polarized photons is formed. The threshold energy for a nanotube with the radius 7 \AA approximately equals 50 MeV . For this energy, directed and quasi-monochromatic beam of photons is generated with an energy of 3 keV .

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