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PS3-12 Bent Glass Tube as a Deflector of Powerful Pulsed Moderately Relativistic Electron Beam

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The deflection of the electron beam passing through a bent glass tube without any external power supply is shown experimentally. The incident electron beam was produced by the inductive accelerator with energy 200 keV, current 10 kA, duration 100 ns. The glass tube of length 10 cm was smoothly bent for 170°. The imprint of the beam turned for angle 170° in the tube has been observed. The average value of the transverse electric field induced in the tube is estimated. Peculiarities of applications of bent dielectric structures for manipulation of beams of negatively and positively charged particles with relativistic and non-relativistic energies are discussed.

References

1. O.S. Druj, V.V. Yegorenkov, A.V. Shchagin, V.B. Yuferov Electron beam transport in dielectric tubes, East European Journal of Physics 1 (2014) 70-73. [In Russian]

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