

# Resonant cyclotron acceleration of particles by a time periodic singular flux tube

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We study the dynamics of a nonrelativistic charged particle moving on a punctured plane under the influence of a homogeneous magnetic field and driven by a periodically time-dependent singular flux tube through the hole. We exhibit an effect of resonance of the flux and cyclotron frequencies in the framework of classical as well as quantum mechanics. In particular, we show that in both statements of the problem an infinite growth of the energy is possible.