Some astrophysical effects of nonlinear vacuum electrodynamics in magnetosphere of pulsar

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Abstract

It has been considered the propagation of hard electromagnetic emissions in magnetosphere of pulsar on the base of General Relativity and nonlinear vacuum electrodynamics. It is shown that the radiation will propagate having different velocities in magnetosphere of pulsar and has form of two normal modes polarized in mutually orthogonal planes. It is calculated the delay between the two orthogonal modes, as they propagate from the pulsar to the detecting device.

Keywords: gamma ray astrophysics, pulsar, quantum electrodynamics, General Relativity