Individual pulse polarization as a result of propagation effects in pulsar plasma

S. A. Petrova

Polarization evolution of natural waves in a plasma of a pulsar magnetosphere is considered. It is shown that, as a result of propagation effects, the outgoing radio waves have elliptical polarization and can be slightly non-orthogonal. Basing on the idea of non-orthogonal superposed modes, a new model of pulsar polarization is suggested. It allows us to reproduce the main features of the observed single-pulse polarization and its statistics. The implications of polarization data of individual pulses for the diagnostics of a pulsar plasma will be discussed.