

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Linear and nonlinear waves with orbital angular momentum in magnetized plasma SHAHID ALI, Instituto Superior Tecnico, Lisboa, Portugal, PADMA KANT SHUKLA, Ruhr Universitat, Bochum, Germany, JOSÉ TITO MENDONCA, Instituto Superior Tecnico, Lisboa, Portugal — Here we discuss the concept of orbital angular momentum (OAM) for electromagnetic waves in a magnetized plasma. Nonlinear effects of photons with spin and OAM will be considered. In particular, we examine the case of parametric interactions between circularly polarized electromagnetic waves and Langmuir and ion acoustic waves, including the ponderomotive force of light with OAM in magnetized plasma (Shukla & Stenflo, PRA). This will be a generalization of recent results published in PRL by J.T. Mendonca and B. Thide. We also examine the influence of OAM on the magnetic field generation by the inverse Faraday effect.

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Date submitted: 22 Jul 2009

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