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Magnetization of electron-positron plasmas by Laguerre-Gaussian light beams carrying orbital angular momentum PADMA KANT SHUKLA, BENGT ELIASSON, Ruhr-University Bochum — It is shown that the relativistic ponderomotive force of intense circularly polarized Laguerre-Gaussian electromagnetic beams can create the space charge electric field which sets differential motions of the electrons and positrons in an electron-positron plasma. The resulting plasma current, in turn, creates quasi-stationary magnetic fields due to Faraday's law. The magnetization by different Laguerre-Gaussian modes carrying orbital angular momentum are investigated.

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