Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

On QED plasmas[1] MIKHAIL MEDVEDEV, University of Kansas — Quantum electrodynamics (QED) effects are interesting phenomena that occur in strong electromagnetic fields. Advances in laser technology brought lab experiments close to the regime where they become important. Furthermore, astrophysical systems such as strongly magnetized neutrons stars and magnetars possess magnetic fields close to or even stronger than the Schwinger (critical) field. Whereas some QED effects are being incorporated in plasma codes, theoretical studies of QED plasmas are lacking. Here we derive the general equation describing QED plasma modes. We discuss the properties of the low-frequency modes, for which the transitions between the Landau levels can be neglected.

[1]Supported by the DOE grant DE-SC0016368 and the DOE EPSCOR grant DE-SC0019474. MVM thanks the Razumovsky Moscow State University, NRC Kurchatov Institute and Moscow Institute of Physics and Technology.

Mikhail Medvedev
University of Kansas

Date submitted: 02 Jul 2019 Electronic form version 1.4