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**Modeling the impact of magnetic field on plasma parameters in an electron beam generated argon plasma**[1] GEORGE PETROV, DAVID BORIS, TZVETELINA PETROVA, SCOTT WALTON, Naval Research Laboratory — A spatially averaged model of an electron beam generated plasma is developed to model the impact of an externally applied magnetic field on the formation of the electron energy distribution function in an argon background. The model is based on numerical solution of the electron Boltzmann equation that is self-consistently coupled to a set of rate balance equations for electrons and argon ions. The confining effect of the magnetic field is studied theoretically by calculating the electron energy distribution function, electron density and temperature as a function of the magnetic field strength in the range 0-300 Gauss. It was established that a rigorous kinetic treatment, which accounts for the impact of the magnetic field over the whole distribution of electrons, is required for accurate description of the plasma.

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