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Magnetized Plasma

Plasma one of the four states of matter, which consists of solid, liquid and gas. Plasma is the result from ionization of neutral gases. It contains many interacting free electrons and ionized atoms, which exhibit collective behavior due to the long-range Coulomb forces. For a collection of interacting charged and neutral particles to exhibit plasma behavior it must satisfy certain conditions for plasma existence to describe plasma as a collection, multiple theories are brought for the for example there is the kinetic theory and fluid theory, which both use the bases of electromagnetism Maxwell's equations in their derivation. A magnetized plasma is one in which the ambient magnetic field is strong enough to significantly alter particle trajectories. Magnetized plasmas are anisotropic, responding differently to forces which are parallel and perpendicular to the direction of B field. For example, the take the Lorentz force, as the B field strength increases, the resulting helical orbits become more tightly wound, effectively tying particles to the magnetic field lines. Magnetized plasma is based off Magnetichydrodynamics (HMD) model and its theoretical calculations.

Work Cited

Richard Fitzpatrick-Plasma Physics an Introduction

Bittencourt-Fundamentals of plasma physics

American Institute of Physics-Frontiers in Modern Plasma Physics