

Abstract Submitted  
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**Characteristic Frequencies and Critical Energies in Magnetized Turbulent Glow Discharge Plasmas**<sup>1</sup> M. ROBINSON, A.B. ALEXANDER, C.T. RAYNOR, J.A. JOHNSON III, Florida A&M University — Previous studies have revealed that dynamic axial magnetic fields can significantly influence the critical turbulent energy and the characteristic turbulent frequencies in glow discharge plasmas. To this end, we analyze the light signatures of several noble gases at constant pressure of 500mtorr and under the influence of static axial magnetic fields ranging from 0 to 500 Gauss. We find that there may be a relationship between the mass of the gas and the slope of its critical turbulent energy when plotted versus magnetic field. We find that this behavior is echoed in the characteristic turbulent frequencies. Further, for all masses and all magnetic fields, we find a high degree of correlation between the two parameters, with important implications for new turbulence physics.

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