

Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

EM Dependence on Energy Transfer and Turbulence in Hypersonic and Laser-Induced Plasmas K.M. WILLIAMS, L.E. JOHNSON, A.B. ALEXANDER, C. AKPOVO, J. MARTINEZ, J. TITUS, Florida A&M University-CEPAST — It has been previously reported that hypersonic weakly ionized Argon and Krypton plasmas created by electric discharge can display Stark and Zeeman profiles that are self-induced. Now evidence of the same Stark and Zeeman profiles are seen in laser induced plasmas as well. While the arc driven plasmas and laser induced plasmas are different systems, both exhibit a commonality with turbulent signatures in spectral profiles. Complexity analysis suggests that the internal plasma dynamics that contribute to the Stark and Zeeman profiles exhibit a lower complexity than profiles that are not Stark and Zeeman lines. Additionally, data also indicated a relationship between the frequency of the Stark and Zeeman and the energy transfer rate in the respective plasmas.

Kyron Williams
Florida A&M University-CEPAST

Date submitted: 30 Jul 2012

Electronic form version 1.4