Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Energy Transfer and Turbulence in Hypersonic and Laser-Induced Plasmas KYRON 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 suggests that the internal plasma dynamics that contribute to the Stark and Zeeman profiles exhibit a lower level of complexity than profiles that are not Stark and Zeeman lines. Energy transport in the system is also studied and found to exhibit a dependence on Stark/Zeeman profiles that is not observed in non-Stark/Zeeman profiles. In addition, the evidence of Stark and Zeeman profiles are seen in laser induced plasmas as well. Analysis of the Stark/Zeeman spectra in laser-induced plasmas indicates turbulent signatures correlated with pulse frequency and width, which are not seen in non-Stark/Zeeman profiles in such plasmas.

Kyron Williams
Florida A&M University/CEPAST

Date submitted: 12 Jul 2013 Electronic form version 1.4