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Spectroscopic observation of geometric inversion in HED plasmas[1] GABRIEL PEREZ CALLEJO, M.F. KASIM, S.M. VINKO, S.J. ROSE[2], J.S. WARK, University of Oxford, L.C. JARROTT, E.V. MARLEY, D.A. LIEDAHL, M.B. SCHNEIDER, Lawrence Livermore National Laboratory — The effects of plasma geometry on the plasma spectra have recently been proved important for diagnosing temperatures and densities in Dot Spectroscopy experiments at the National Ignition Facility (NIF). The cylindrical geometry of these targets causes the intensity of the optically thick lines to have a non-trivial angular dependence. The degree of anisotropy is a function of the aspect ratio (height-to-radius or H/R). We have performed experiments at OMEGA to understand this effect. In the experiments, we create a uniform cylindrical plasma with microdots of mid-Z materials in order to study K-shell spectroscopy. Time resolved imaging and spectroscopy data were obtained for two perpendicular views of the plasmas. Data show how the geometry of the plasma changing from disk-like to pipe-like affects the line ratios, in agreement with the escape factor approach proposed by Kerr *et al.* in 2004. This effect shows the importance of the geometry of the plasma in the study of line ratios in High Energy Density (HED) Physics, and the potential of this analysis as a method for plasma characterization.

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