Abstract Submitted
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***Ab initio* calculations of the electron momentum distribution function for ordered and disordered warm dense matter (WDM)**[1] E. KLEVAK, B.A. MATTERN, J.J. KAS, J.J. REHR, G.T. SEIDLER, U. Washington — We report new calculations of the electron momentum distribution $n(p)$ for ordered and disordered materials of interest for warm dense matter research. The central role of the electron-ion interaction and the need to orthogonalize the valence-electron and core-electron wave functions has often been ignored in the interpretation of x-ray Thomson scattering studies of WDM.[2] This has led to substantial uncertainty in the inferred temperatures and ionization states in laser-shock generated dense plasmas. Real space Green's function calculations as a function of density and disorder are used to evaluate the possibility of a broadly applicable universal rescaling of the free-electron $n(p)$ by an effective volume and effective temperature to approximate the effects of valence-core orthogonalization.

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[2]Mattern, B. A. et al. arXiv:**1308.2990** (2013)

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