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A Strongly-Coupled Average Atom Model for Warm Dense Mixtures[1] LIAM STANTON, Lawrence Livermore National Laboratory, MICHAEL MURILLO, Los Alamos National Laboratory, THE CIMARRON PROJECT COLLABORATION — We present a new average atom model to determine the properties of dense, multi-component plasmas. Strong ion correlations are taken into account through the quantum Ornstein-Zernike relations and hypernetted-chain closures, while an orbital-free density functional theory is employed to calculate electronic structure. The formalism is derived without reference to a mean ionization state of the system which allows for a more consistent generalization to mixtures. Applications to EOS and XRTS are discussed, and numerical simulations are compared with other methods and experimental data.

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