

Abstract Submitted
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Regions of Validity for Common Plasma Models R. LILLY, U. SHUMLAK, Aerospace and Energetics Research Program, University of Washington, Seattle, WA 98195-2600 — Common plasma models, consisting of the kinetic, two-fluid ten-moment, two-fluid five-moment, and MHD descriptions, are reviewed. The assumptions used in the derivation of the fluid models are discussed, in particular the limits of their validity. Specific assumptions about the collisionality with regard to the thermalization times are explored. Requirements for model closure will be examined, paying attention to the restrictions on the distribution function. How these assumptions are different between the two-fluid ten-moment, two-fluid five-moment and MHD models will also be examined. Dispersion relations for the resulting fluid descriptions will be derived, and the associated physics captured will be compared.

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