Hamiltonian closures for fluid models originated from drift-kinetic equations

E. Tassi[1]

[1] Centre de Physique Théorique, Marseille, France

Drift-kinetic models, obtained from a reduction of Vlasov-Poisson or Vlasov-Maxwell systems, provide an effective tool for investigating the dynamics of strongly magnetized plasmas. In this contribution I will consider a class of electrostatic drift-kinetic systems possessing a non-canonical Hamiltonian structure. In particular, I will consider the evolution equations of the first two kinetic moments of such drift-kinetic systems and address the problem of identifying closures that guarantee a Hamiltonian structure for the resulting fluid model. Closures satisfying this condition will be presented and connections with reduced fluid models present in the literature will be discussed.