1135-35-548 **Irene M. Gamba*** (gamba@math.utexas.edu), Department of Mathematics and, Institute of Computational Engineering and Sc, The University of Texas at Austin, Austin, TX 78712-1082.

The Landau equation: Analysis and Approximations to collisional plasmas.

We will discuss recent progress on the rigorous analytical issues of constructing solutions for the non-linear Landau equation as limiting ones for the Boltzmann equation for elastic binary particle interactions, in the grazing collision limit, for Coulomb potentials. Approximations and computational models for this problem are at the core of collisional plasma theories. In particular we will discuss several aspects of conservative solvers for the kinetic transport equations of particle interactions, that involve both the Boltzmann and its approximate Landau equation, by means of operator splitting that hybridize energy conservative Discontinuous Galerkin schemes for the transport advective part, and a fast energy conservative Lagrangian spectral solver for the collisional part, i.e. the Boltzmann or Landau operators. The algorithm links both schemes by a projection method. The evolution of the energy conservative Lagrangian spectral solver is shown to satisfy error estimates and to converge to the expected Maxwellian equilibrium density in the long time limit. (Received September 07, 2017)