1125-34-502 **Bilyana Tzolova*** (btzolov1@jhu.edu), **Abigail Hickok**, **Justyna Tafoya**, **Robert Loek Van Heyningen**, **Omer Tekin**, **Frank Graziani** and **Chris Scullard**. *Adaptive Polynomial Expansion Method for the Numerical Solution of the Landau Equation.* Preliminary report.

The mathematical description of plasma is a very important area of research with applications in stellar astrophysics and fusion research. The distributions of electrons and protons within plasma can be modeled using the quantum Lenard-Balescu equation. We study a system in which the two species of particles begin at different initial temperatures and evolve to the same equilibrium temperature. In order to solve the differential equations that govern this model, we build upon existing work which use Laguerre polynomials. In particular, we fix a numerical instability which occurs when the initial temperature of the particles are too far from the equilibrium temperature of the system by using an adaptive method that periodically updates the underlying polynomials. (Received September 04, 2016)