1125-35-2146 **Stephen Pankavich*** (pankavic@mines.edu), 1500 Illinois Street, Golden, CO 80401. *Global Classical Solutions of the Vlasov-Maxwell-Fokker-Planck System.*

The Vlasov-Maxwell system is a fundamental kinetic model of plasma dynamics. When one includes effects due to collisions with a fixed background of particles, the result is the Vlasov-Maxwell-Fokker-Planck system. The first Lorentz-invariant model, which considers relativistic velocities, was recently derived by Calogero in 2010. Here, we shall discuss well-posedness results for global-in-time classical solutions of this system and its non-relativistic analogue, each posed in a variety of dimensional settings. Our methods utilize a gain in regularity stemming from the diffusion to arrive at smooth solutions stemming from initial data which lack even weak differentiability. (Received September 19, 2016)