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Stephen Pankavich* (pankavic@mines.edu), 1500 Illinois St, Stratton Hall 224, GOLDEN, CO 80401. *Global Classical Solutions for the Relativistic Vlasov-Maxwell-Fokker-Planck system.*

The Vlasov-Maxwell system is a fundamental kinetic model of plasma dynamics. When one considers relativistic velocities and includes effects due to collisions with a fixed background of particles, the result is the relativistic Vlasov-Maxwell-Fokker-Planck system. The first Lorentz-invariant model of this type was recently derived by Calogero and Felix in 2010. Here, we shall discuss the first well-posedness results for global-in-time classical solutions of this system posed in a lower-dimensional setting. Our methods utilize a gain in regularity stemming from the diffusive term to arrive at smooth solutions stemming from initial data which lack even weak differentiability properties. (Received January 27, 2014)