# Multi Level Monte Carlo for Coulomb Collisions in a Plasma

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This talk will describe the application of MLMC to solution of stochastic differential equations (SDEs) describing Coulomb collisions in a plasma. The collisions are between "test particles" and a Maxwellian distribution of "field Particles". The SDEs are three-dimensional and the Levy areas in the Milstein method are not tractable, but acceleration is achieved by reduction in the variance of the simulation with coarsest time step and by the antithetic method or a "Ito linearization method". Preliminary results are presented on MLMC for systems that depend on mean fields.

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