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In this talk, we will present some preliminary results on the discontinuous Galerkin (DG) schemes for Vlasov-Poisson (VP) systems in plasma physics. Firstly we will investigate and rigorously study the recurrence phenomenon which results from finite resolution in the phase space. Then we will provide numerical tests on the linear Landau damping problems. Finally we investigate the performance of various DG schemes for the nonlinear VP systems. In particular, we will look into the physical invariance, BGK modes and trapping scaling. Some discussion related to the quasilinear theory will be provided. We will also mention some ongoing work in the simulation of Vlasov-Maxwell systems. The emphasis of the talk will be both the design of numerical schemes and the physics embedded in the simulation. (Received August 27, 2010)