

# STABILITY OF A POINT CHARGE FOR THE REPULSIVE VLASOV-POISSON SYSTEM

BENÔIT PAUSADER

We consider solutions of the repulsive Vlasov-Poisson systems which are a combination of a point charge and a small density with respect to Liouville measure (a “cloud”), and we show that these solutions exist globally, that the electric field decay at an optimal rate and that the particle distribution converges along a modified scattering dynamics. This follows by a Lagrangian study of the linearized equation, which is integrated by means of an asymptotic action-angle coordinate transformation, and an Eulerian study of the nonlinear dynamic which exhibits the “mixing” mechanism responsible for the asymptotic behavior. This is joint work with Klaus Widmayer (U. Zurich) and Jiaqi Yang (ICERM).