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Landau damping near the Poisson equilibrium in R^3

Monday 3 June 2024 16:30 (1 hour)

While “Landau damping” is regarded as an important effect in the dynamics of hot, collisionless plasmas, its mathematical understanding is still in its infancy. This talk presents a recent nonlinear stability result in this context. We start with a discussion of dynamics in the linearized Vlasov-Poisson equations near certain homogeneous equilibria on R^3, and see how both oscillatory and damping effects arise. Finally we will sketch how these mechanisms imply a nonlinear stability result in the specific setting of the Poisson equilibrium.

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