

Seminar EDPs

Speaker: Renato Velozo (U. Cambridge).

Title: Gevrey regularity for the Vlasov-Poisson system.

Abstract: The importance of understanding high regularity solutions for the Vlasov-Poisson system has been underscored by the work on Landau damping of Mouhot-Villani and several other follow ups. These works on Landau damping make use of the propagation in time of high order regularity in a perturbative regime around homogeneous stationary solutions of the Vlasov-Poisson system. In this talk, we prove a general result on propagation of Gevrey regularity for the Vlasov-Poisson system on $\mathbb{T}^d \times \mathbb{R}^d$ using a Fourier space method in analogy to results proved for the 2D-Euler system by Levermore-Oliver and Kukavica-Vicol. More precisely, we give quantitative estimates for the growth of the Gevrey norm and decay of the regularity radius for the solution of the system in terms of the force field and the volume of the support in the velocity variable of the distribution of matter. As an application, we show global existence of Gevrey solutions for the Vlasov-Poisson system in $\mathbb{T}^3 \times \mathbb{R}^3$.

Martes 3 de noviembre a las 12pm en el link zoom:

<https://uchile.zoom.us/j/88121344517?pwd=aHYreWlyWDBGcVUxdGNMZjN2SzNFZz09>

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