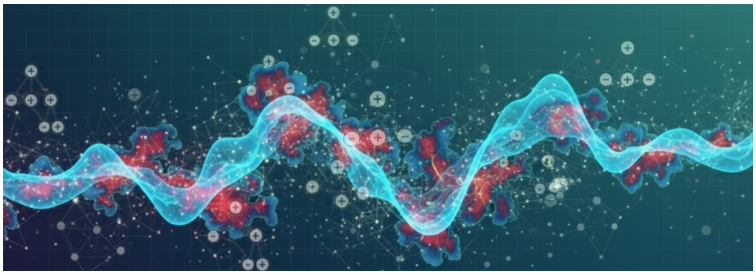

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Katja Vassilev : One-dimensional wave-kinetic theory

mardi 16 décembre 2025 11:20 (45 minutes)

Abstract: Wave kinetic equations have been rigorously derived up to the kinetic timescale from dispersive systems in dimension $d \geq 2$. In this talk, we address the question of deriving kinetic equations in dimension one. Similar to higher dimensional models, one may expand the solution into iterates, represented by Feynman diagrams. However, the combinatorial estimates needed to bound these diagrams are much worse in dimension one, leading to some of these diagrams diverging at times much shorter than T_{kin}. We explain this phenomena for the MMT (Majda, McLaughlin, and Tabak) model, a 1D model encompassing a range of dispersion relations, including the case of the 1D NLS. In this case, the kinetic equation is trivial, so we will discuss the question of what the appropriate kinetic theory could be in this setting.