Homogeneous Boltzmann-Type Equations on Graphs

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Abstract

In this talk, we present recent results on homogeneous (i.e., space-independent) Boltzmann-type collisional kinetic equations for interacting multi-agent systems on graphs. The graph structure encodes preferential interaction patterns among agents, departing from the classical "all-to-all" interaction framework.

We focus, in particular, on mathematically consistent approaches for embedding graph structures into homogeneous Boltzmann-type equations, considering both finite and infinite graphs, as well as their limiting graphons. Relevant motivating applications include kinetic models for the spread of infectious diseases and for opinion formation dynamics.

References

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