

MATH SEMINAR SERIES RUTGERS-CAMDEN

12:45 – 1:45 PM, NOVEMBER 7TH, 2024

ARMITAGE HALL - ROOM 121



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Title: Emerging Applications of Graphons in Dynamical Systems

Abstract: Natural and man-made networks, ranging from neuronal networks to power grids and social networks, can be effectively modeled by interacting dynamical systems on graphs. One of the key challenges in studying such models is handling network connectivity. The theory of graphons, originally developed for problems in discrete mathematics, offers natural and effective analytical tools for integrating network connectivity into dynamical models. The application of graphons has facilitated progress in understanding the dynamics of network models that were previously inaccessible to analysis.

In this talk, we review the elements of the theory of graphons that have proven useful for the mathematical analysis of dynamical systems. This will be followed by a discussion of recent results on synchronization and bifurcations in the Kuramoto model of coupled phase oscillators.



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