

An L^p Theory of Sparse Graph Limits

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How can we understand the structure of an humongous network? For dense graphs, Szemerédi regularity is a fundamental tool that has led to a rich theory of graph limits. However, many real-world networks are sparse, and all sparse graphs converge to zero in the dense theory. To distinguish between them, we need a more refined theory. Bollobás and Riordan took an important step in this direction by analyzing sparse graphs without dense spots, but this hypothesis rules out many important cases such as power-law distributions. In this talk, I'll review the theory of graph limits and discuss the extension to sparse graphs (This is joint work with Jennifer Chayes, Henry Cohn and Yufei Zhao).