

Powers of Hamilton Cycles in Oriented and Directed Graphs

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A directed graph contains the k th power of a Hamilton cycle if the vertices can be cyclically ordered so that there is a directed edge from every vertex to each of the following k vertices. In this talk, we will discuss two results on conditions that guarantee the existence of such cycles. One concerns minimum semi-degree conditions that imply the existence of the k th power of a Hamilton cycle in oriented graphs, and the other establishes the minimum total degree threshold for the second power of a Hamilton cycle in digraphs asymptotically. Both of these results are analogous to the Pósa-Seymour conjecture which was proved by Komlós, Sárközy, and Szemerédi for large graphs. This is joint work with Louis DeBiasio, Jie Han, Allan Lo, Simón Piga, and Andrew Treglown.

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