Hamilton cycles in oriented graphs

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Abstract

A fundamental result of Dirac states that a minimum degree of $|G|/2$ guarantees a Hamilton cycle in an undirected graph G. There is an analogue of this for digraphs due to Ghouila-Houri which states that every digraph D whose minimum out- and minimum indegrees satisfy $\delta^+(D), \delta^-(D) \geq |D|/2$ contains a Hamilton cycle. I will discuss the following analogue of the latter result for oriented graph G: every sufficiently large oriented graph G with $\delta^+(G), \delta^-(G) \geq (3|G|-4)/8$ contains a Hamilton cycle. This bound is best possible an d answers a question of Thomassen from 1979 for large oriented graphs. I will also discuss some related results. (Joint work with Peter Keevash, Luke Kelly and Deryk Osthus)