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Ryan R Martin* (rymartin@iastate.edu), 396 Carver Hall, Department of Mathematics, Iowa State University, Ames, IA 50011, and **Richard Mycroft** and **Jozef Skokan**. *An asymptotic multipartite Kühn-Osthus theorem.*

An h -vertex graph H is said to perfectly tile an n -vertex graph G if there is a subgraph of G consisting of n/h vertex-disjoint copies of H . Kühn and Osthus showed that n sufficiently large, $h \mid n$, and $\delta(G) \geq \left(1 - \frac{1}{\chi^*(H)}\right)n + C$ is sufficient for a perfect H -tiling. Here, $\chi^*(H)$ is a parameter related to Komlós' critical chromatic number and C is a constant depending only on H . This generalizes classical results by Hajnal and Szemerédi, among others.

When the underlying graph is a balanced multipartite graph, the picture changes and seems even more difficult. We prove an asymptotic multipartite version of the Kühn-Osthus result. For an r -partite graph G , the relevant parameter is denoted $\delta^*(G)$, the minimum number of neighbors a vertex in G has in any of the other $r - 1$ vertex classes. We show that if H is an h -vertex, r -colorable graph, $\alpha > 0$ is fixed, n is sufficiently large, and $h \mid n$, then any balanced r -partite graph G on rn vertices with $\delta^*(G) \geq \left(1 - \frac{1}{\chi^*(H)}\right)n + \alpha n$, then G has a perfect H tiling. Moreover, this cannot be improved, apart from replacing the αn term by a constant C . (Received July 22, 2016)