

# Generalized factors of graphs

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## Abstract

Let  $G$  be a graph and  $f : V(G) \rightarrow 2^{\mathbb{N}}$ . An  $f$ -factor of  $G$  is a subgraph  $H$  of  $G$  with  $V(H) = V(G)$  such that  $d_H(v) \in f(v)$  for every  $v \in V(H)$ . Tutte's  $f$ -factor theorem gives a necessary and sufficient condition for a graph to have an  $f$ -factor when  $|f(v)| = 1$  for all  $v \in V(G)$ . In this talk I will consider various instances and generalizations of the  $f$ -factor problem, with solutions comprising a mix of combinatorial, probabilistic and algebraic methods.