# Cycle Decomposition Numbers of Graphs

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**Abstract**

One of the most fundamental problems in graph theory concerns whether a graph G can be decomposed into subgraphs, each of which is isomorphic to a given graph H. This includes such well-known problems as to whether a given graph is 1-factorable, or perhaps has a hamiltonian decomposition. Not all graphs G are H-decomposable, so a natural question is: "How close to being H-decomposable is G?" This talk will explore one possible response to this question. For a graph H without isolated vertices, the H-decomposition number of G is the minimum number of vertices that must be added (along with the appropriate edges incident with these vertices) to G to produce a graph F, containing G as an induced subgraph, such that F is H-decomposable. Results will be presented where H is a cycle.