

## ABSTRACT

### **Amalgamations and Hamilton Decompositions**

In this talk, we will explore the use of amalgamations in the construction of graph decompositions, most often looking for Hamilton cycle decompositions. This method uses graph homomorphisms to envision an “outline” of the structure of interest, then attempts to disentangle the merging of vertices effected by the homomorphism in such an outline structure. As will be shown, this method has proved to be very effective, for example, in the studying the embedding of edge-colorings of graphs into Hamilton decompositions, and the existence of maximal sets of Hamilton cycles in various graphs.