1138-05-368 **Victor Falgas-Ravry**, **Kelly O'Connell** and **Andrew Uzzell*** (`uzzellan@grinnell.edu`).
Multicolor hypergraph containers.

The hypergraph container method is a technique for solving combinatorial problems that can be phrased in terms of independent sets in hypergraphs. In particular, hypergraph containers have been used to determine the number and typical structure of graphs in various families. A *k-colored graph* is a complete graph whose edges are labeled with one of k colors. We use hypergraph containers to determine the asymptotic number of k-colored graphs in a hereditary family, as well as to characterize the typical structure of graphs in such a family. As an application, for certain directed graphs H, we determine the asymptotic number of H-free directed graphs on n vertices. This generalizes a result of Kühn, Osthus, Townsend, and Zhao. (Received February 13, 2018)