Bartłomiej Kielak

Jagiellonian University

On Inducibility of Small Graphs and Oriented Graphs

Inducibility of a graph H is the limit of a maximum induced density of H over all graphs on n vertices, with n going to infinity. So far, it was determined only for very special classes of graphs and the smallest graph for which it is unknown is P_4, i.e. the path on 4 vertices. We improve the best known lower bound of inducibility of P_4 by providing an appropriate sequence of graphs with many copies of P_4.

We also consider the problem of determining the inducibility of oriented graphs on four vertices. We provide exact values for more than half of the graphs, and very close lower and upper bounds for all the remaining ones. It occurs that, for some graphs, the structure of extremal constructions maximizing density of its induced copies is very sophisticated and complex.

This is based on joint works with Andrzej Grzesik, Łukasz Bożyk, and Radosław Żak.