

Abstract for RSA, 2013

Improved counting relative to pseudorandom graphs

Julia Böttcher

London School of Economics, UK

Recently, Conlon, Fox and Zhao proved a counting lemma, counting small graphs in ε -regular subgraphs of sparse pseudorandom graphs. This counting lemma has many important applications such as sparse pseudorandom analogues of Turán's Theorem, Ramsey's Theorem and the graph removal lemma.

One key ingredient for the proof of their counting lemma is a regularity inheritance lemma, which states that for most vertices in an ε -regular subgraph of a pseudorandom graph, the neighbourhoods of this vertex form an ε' -regular graph. We improve this regularity inheritance lemma, so that it now applies to graphs with weaker pseudorandomness conditions. This implies an improved counting lemma relative to these pseudorandom graphs.

Joint work with Peter Allen, Jozef Skokan, Maya Stein.