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Computing Defective Ramsey Numbers

Tınaz Ekim
Boğaziçi Un., Dept. of Industrial Engineering

Abstract: We investigate a variant of Ramsey numbers called defective Ramsey numbers, introduced by Ekim and Gimbel in 2013, where cliques and independent sets are generalized to k -dense and k -sparse sets, both commonly called k -defective sets. Given the great difficulty of computing Ramsey numbers of various types, we focus on the computation of defective Ramsey numbers in some restricted graph classes. We adopt a two-fold approach. We first provide direct proofs using structural graph theory. When this technique falls short in obtaining new values of defective Ramsey numbers, we use efficient graph enumeration techniques for structured graphs.

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