A Computational Study for the Graph-theoretic Version of the Union-closed Sets Conjecture

Abstract

An induced subgraph $S$ of a graph $G$ is called a derived subgraph of $G$ if $S$ contains no isolated vertices. An edge $e$ of $G$ is said to be residual if $e$ occurs in more than half of the derived subgraphs of $G$. We prove some theorems which calculate the number of derived subgraphs for some special graphs. We also present a new algorithm SDSA that calculates the number of derived subgraphs for a given graph $G$ and determines the residual and non-residual edges. Finally, we introduce a computational study which supports our results.

References

- B. Llano, J. Montellano-Ballesteros, E. Rivera-Campo and R. Strauz "On..."

**Index Terms**

Computer Science
Applied Mathematics

**Keywords**

Union closed sets conjecture  induced graphs  derived subgraphs