



BOUNDS ON THE SUM OF MINIMUM SEMIDEFINITE RANK OF A GRAPH AND ITS COMPLEMENT*

SIVARAM K. NARAYAN[†] AND YOUSRA SHARAWI[‡]

Abstract. The minimum semi-definite rank (msr) of a graph is the minimum rank among all positive semi-definite matrices associated to the graph. The graph complement conjecture gives an upper bound for the sum of the msr of a graph and the msr of its complement. It is shown that when the msr of a graph is equal to its independence number, the graph complement conjecture holds with a better upper bound. Several sufficient conditions are provided for the msr of different classes of graphs to equal to its independence number.

Key words. Minimum semidefinite rank, Matrix of a graph, Independence number, Graph complement conjecture.

AMS subject classifications. 15A18, 15A57, 05C50.

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Corresponding Author: Youstra Sharawi.

[†]Department of Mathematics, Central Michigan University, Mount Pleasant, MI 48858, USA (sivaram.narayan@cmich.edu).

[‡]Department of Mathematics & Statistics, American University of Sharjah, Sharjah, PC 26666, United Arab Emirates (altelly@cmich.edu).