Electronic Journal of Linear Algebra ISSN 1081-3810
A publication of the International Linear Algebra Society
Volume 15, pp. 210-214, July 2006

ELA
http://math.technion.ac.il/iic/ela

ON MINIMAL RANK OVER FINITE FIELDS*

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Abstract. Let F be a field. Given a simple graph G on n vertices, its *minimal rank* (with respect to F) is the minimum rank of a symmetric $n \times n$ F-valued matrix whose off-diagonal zeroes are the same as in the adjacency matrix of G. If F is finite, then for every k, it is shown that the set of graphs of minimal rank at most k is characterized by finitely many forbidden induced subgraphs, each on at most $(\frac{|F|^k}{2} + 1)^2$ vertices. These findings also hold in a more general context.

Key words. Minimal rank, Forbidden induced subgraph, Critical graph.

AMS subject classifications. 05C50, 05C75, 15A03, 15A33.

*Received by the editors 03 November 2005. Accepted for publication 12 July 2006. Handling Editor: Raphael Loewy.

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