

ON \mathcal{C} -COMMUTING GRAPH OF MATRIX ALGEBRA*

P. RAJA[†] AND S. M. VAEZPOUR*

Abstract. Let D be a division ring, $n \geq 2$ a natural number, and $\mathcal{C} \subseteq M_n(D)$. Two matrices A and B are called \mathcal{C} -commuting if there is $C \in \mathcal{C}$ that $AB - BA = C$. In this paper the \mathcal{C} -commuting graph of $M_n(D)$ is defined and denoted by $\Gamma_{\mathcal{C}}(M_n(D))$. Conditions are given that guarantee that the \mathcal{C} -commuting graph is connected.

Key words. Division ring, Matrix Algebra, Commuting.

AMS subject classifications. 15A27, 15A33, 16P10.

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[†]Department of Mathematics and Computer Sciences, Amirkabir University of Technology, Hafez Ave., P. O. Box 15914, Tehran, Iran (p_raja@cic.aut.ac.ir, vaez@aut.ac.ir).