

1056-15-1428

Zhexiu Tu* (tuzhexiu@gmail.com), Bard College, P.O. Box 5000, Annandale-on-Hudson, NY 12504, and **Olivia Walch**. *Minimal Sufficient Sets and the Commutativity of Patterns*.

In this research, we discuss the commutativity problem of matrix theory on the commutant of matrices in patterns by studying the minimal sufficient set of the commutant. We prove that there always exists a minimal sufficient set for commutant of any given matrix and try to find a universal minimal sufficient set for the commutant of matrices in a certain pattern. We start by considering the commutant of matrices in tridiagonal pattern, and then that of matrices in star(arrow) pattern. We conclude that only commutant of tridiagonal matrices has a universal minimal sufficient set. (Received September 21, 2009)