1112-16-67 **S K Jain*** (jain@ohio.edu), 76 Anchor Lane, Springboro, OH 45066. *Quasi-Permutation Singular Matrices are Products of Idempotents.*

Initiated by J. Erods the problem of decomposing singular matrices into product of idempotents has been intensively studied by several authors (J. Fountain, J. Hannah, K. O'Meara and others). Recently it has been shown, (Alahmadi-Jain-Leroy-Sathaye, Electronic JLA, to appear), among others, that every nonnegative matrix $A \in M_n(R)$ of rank one, $n > 1$ is a product of at most three nonnegative idempotents.

A matrix $A \in M_n(R)$ over a ring R, is called a quasi-permutation matrix if each row and each column has at most one non-zero entry. We show by using combinatorial techniques that a singular quasi-permutation matrix with coefficients in a domain can be represented as a product of idempotents. As an application it follows that nonnegative matrices having nonnegative von Neumann inverse can be written as product of nonnegatrive idempotents (joint with Alahmadi and Leroy). Indeed, the well-known structures of nonnegative matrices that have nonnegative v.N.i. reveal strong links with rank one matrices and quasi-permutation matrices We would also revisit briefly an open question on group algebras whether continuous von Neumann regular group algebra of a group G over rationals is self-injective, equivalently, semisimple artinian?

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