

Commuting nilpotent matrices and pairs of partitions

Roberta Basili

`basili@dipmat.unipg.it`

Dipartimento di Matematica e Informatica

Università di Perugia

Via Vanvitelli 1

06123 Perugia

ITALY

Abstract

We discuss the canonical form of pairs of $n \times n$ commuting nilpotent matrices and the irreducibility of the family of such pairs, as well as the irreducibility of $\text{NC}(P)$, the nilpotent commutator of a nilpotent matrix of Jordan form given by the partition P . We give some consequences of each. We then apply some results to the problem of determining which partitions occur for the Jordan canonical form of elements in $\text{NC}(P)$. The latter is joint work with Tony Iarrobino.