

Nilpotent subalgebra of the commutator

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(Joint work with R. Basili)

Let $Mat_n(K)$ denote the ring of $n \times n$ matrices over a field K . Fix a nilpotent $n \times n$ matrix B of Jordan partition P , and consider the commutator algebra $C_B \subset Mat_n(K)$ of B , and its subset N_B of nilpotent matrices. R. Basilli defined a certain maximal commutative nilpotent subalgebra $N = N_{B,sp}$ of N_B . We discuss natural bases for the quotients N^i/N^{i+1} . We also pose some questions about the connection with the problem of determining the Jordan partition $Q(P)$ of a generic element of N_B .