"On the maximum nilpotent orbit which intersects the centralizer of a matrix"

speaker: Roberta Basili

Abstract

We point out properties of the maximum nilpotent orbit which intersects a varieties described by a strictly upper triangular matrix over a polynomial ring; we show that it only depends on the ranks of its submatrices and we introduce conditions on a subvariety so that it intersects that maximum orbit. We apply these results to a maximal nilpotent subalgebra of the centralizer of a given nilpotent \( n \times n \) matrix with partition \( B \); then we prove that the maximum partition of a nilpotent matrix which commutes with \( B \) can be found by a simple algorithm which was conjectured by Polona Oblak.