

In this seminar, we will present some algebraic-differential techniques that allow us to prove some Lefschetz properties for Jacobian rings of cubic threefolds and fourfolds and, more generally, for complete intersection algebras presented by quadrics. We will present also some partial results for higher codimensions. As a byproduct of these methods, one can also get a new proof of the famous theorem of P. Gordan and M. Noether. The talk is based on works in collaboration with Gian Pietro Pirola.