

Lefschetz properties for Artinian Gorenstein algebras presented by quadrics

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Cohomology rings over a field of smooth projective varieties are Artinian Gorenstein algebras. For such varieties we have Lefschetz hard Theorem, hence we expect that "good" AG algebras have the analogous Lefschetz property. It was conjectured by J. Migliori and U. Nagel that Weak Lefschetz property would hold for AG algebras presented by quadrics in characteristic zero. It is NOT true. We construct a family of counterexamples using a combinatorial-algebraic-geometric construction. Joint work with Giuseppe Zappalà.