

Artinian Gorenstein algebras and components of the Hodge locus

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In this talk we will introduce an Artinian Gorenstein algebra associated to every non-trivial Hodge cycle of a smooth even dimensional hypersurface of the complex projective space. We will explain how this algebra relates to the periods of the given Hodge cycle and to the Zariski tangent space of its associated analytic Hodge locus. Using the properties of Artinian Gorenstein algebras and recent results about explicit computations of periods for complete intersection algebraic cycles, we will describe some components of the Hodge locus passing through the Fermat variety.