

# HILBERT SCHEMES OF DEGREE FOUR CURVES

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ABSTRACT. In this paper we determine the irreducible components of the Hilbert schemes  $H_{4,g}$  of locally Cohen-Macaulay space curves of degree four and arbitrary arithmetic genus  $g$ . We show that these Hilbert schemes are connected, in spite of having  $\sim \frac{g^2}{24}$  irreducible components. For  $g \leq -3$  we exhibit a component that is disjoint from the component of extremal curves and use this to give a counterexample to a conjecture of Ait-Amrane and Perrin.

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