Enumerative geometry of hyperelliptic curves

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Abstract

We describe a simple recipe relating the geometry of hyperelliptic curves in a variety X to the geometry of rational curves in H(2,X), the Hilbert scheme of 2 points of X. We study this correspondence in the case X = P^2 to give a method for counting the number of degree d, genus g, hyperelliptic plane curves passing through 3d+1 general points.