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PAA A114

Hyperelliptic curves, Weierstrass points and graph formulas

The moduli space of curves, a spaces whose points parameterize complex structures on compact topological surfaces, is at this point a classical object in algebraic geometry. In attempting to study its geometry via intersection theory (i.e. by finding classes of subvarieties and how they intersect), the notion of "tautological intersection ring" was developed: we will introduce what it is and give a brief overview of what is known and conjectured about it. We will focus in particular on the locus of hyperelliptic curves, i.e. curves that admit a degree 2 map to the line. Goal of the talk is to motivate the hope that the class of the hyperelliptic locus might be described via a graph formula (at this point read: in a combinatorially elegant and meaningful way), and show some preliminary results in this direction. The original work presented is in collaboration with Nicola Tarasca.

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