Queen's Algebraic Geometry
— Seminar —

Covers of Elliptic Curves
and
Slopes of Effective Divisors
on the
Moduli Space of Curves

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Abstract

Consider genus g curves that admit degree d covers to elliptic curves only branched at one point with a fixed ramification type. The locus of such covers forms a one parameter family Y that naturally maps into the moduli space of stable genus g curves $\overline{\mathcal{M}}_g$. We study the geometry of Y, and produce a combinatorial method by which to investigate its slope, irreducible components, and genus. As a by-product of our approach, we find some equalities from classical number theory. Moreover, a correspondence between our method and the viewpoint of square-tiled surfaces is established. We also use our results to study the lower bound for slopes of effective divisors on $\overline{\mathcal{M}}_g$. Reference: `arXiv:0704.3994`

Monday, November 12, 2007
4:30pm – 5:30pm
319 Jeffery Hall