Jean-Morlet Chair - Conference

Arithmetic Statistics - Statistiques arithmétiques

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Title: *Isogeny classes of typical principally polarized abelian surfaces over* $\mathbb{Q}$

Abstract: We describe an algorithm which, given a principally polarized (p.p.) abelian surface A over $\mathbb{Q}$ with geometric endomorphism ring $\mathbb{Z}$, computes all the other p.p. abelian surfaces over $\mathbb{Q}$ that are isogenous to A. We ran this algorithm on more than $1,500,000$ Jacobians of genus 2 curves, thereby obtaining the first sizeable dataset of provably complete isogeny classes of abelian surfaces with small conductors.