

Newton Polygon Stratification of the Torelli Locus in PEL-type Shimura Varieties

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A fundamental problem in arithmetic geometry is to determine which abelian varieties arise as Jacobians of (smooth) curves. In positive characteristic p , we study this problem from the moduli perspective by asking which Newton strata intersect the Torelli locus in the moduli of abelian varieties. In this talk, I will introduce a general picture where we try to answer his question by replacing \mathcal{A}_g with a Shimura variety of PEL-type, and \mathcal{M}_g with a Hurwitz space of cyclic covers of \mathbb{P}^1 . Using an inductive method, when $p \equiv 2 \pmod{3}$, for all g , we prove the existence of a smooth curve of genus g whose Newton polygon has about $2g/3$ slopes of $1/2$. This work is joint with Mantovan, Pries and Tang.