

Prym varieties of non-cyclic triple coverings

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Abstract

Classical Prym varieties are principally polarised abelian varieties associated to étale double coverings between curves. We study a special class of Prym-Tjurin varieties of exponent 3, coming from *non-cyclic* étale triple coverings of curves of genus 2. We show that the moduli space of such coverings is a rational threefold, mapping 10:1 via the Prym map to the moduli space of curves of genus 2. Surprisingly, this class of abelian varieties did not appear in any classification of Prym-Tjurin varieties so far. The crucial ingredient used to obtain such an explicit description of the moduli space, is that any genus 4 curve which admits a non-cyclic triple cover over a genus 2 curve, is actually hyperelliptic.

*joint work with Herbert Lange.