WHAT ARE ABELIAN VARIETIES OF DIMENSION SIX?

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ABSTRACT. Abelian varieties are group varieties, that is, loci given by polynomial equations which simultaneously admit a group structure. It is classically known that general abelian varieties of dimension at most five are Prym varieties associated to covers between algebraic curves. This reduces the study of abelian varieties of small dimension to the beautifully concrete and rich theory of curves.

I will discuss decisive recent progress on finding a structure theorem for abelian varieties of dimension six, and the implications this uniformization result has on the geometry of their moduli space.