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Explicit calculations with a moduli space of abelian surfaces

The moduli space of principally polarized abelian surfaces with a full level 3 structure can be described by the threefold B : $y_0(y_0^3 + y_1^3 + y_2^3 + y_3^3 + y_4^3) + 3y_1y_2y_3y_4 = 0$. We will explain how to use the geometry of B to explicitly construct a family of smooth genus 2 curves, and discuss the geometric origin of the level 3 structure on these curves. This is joint work with Nils Bruin.