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Polarisations of abelian varieties over finite fields via canonical liftings

In this talk we will give a widely applicable and computable description of polarisations of abelian varieties over finite fields. More precisely, we will describe all polarisations of all abelian varieties over a finite field in a fixed isogeny class corresponding to a squarefree Weil polynomial, when one variety in the isogeny class admits a canonical lifting to characteristic zero. The computability of the description relies on applying categorical equivalences between abelian varieties over finite fields and fractional ideals in étale algebras.

This is joint work with Jonas Bergström and Stefano Marseglia.