Point counting on abelian varieties in asymptotically optimal time

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Joint work with D. Lubicz.

We outline an algorithm for point counting on ordinary abelian varieties over finite fields of ‘small’ characteristic. The asymptotic time complexity of this algorithm is quadratic in the degree of the finite field. Our method forms a generalization of both, Satohs p-adic algorithm for elliptic curves and Mestres 2-adic arithmetic-geometric mean method.