

Bad reduction of genus 3 curves with complex multiplication

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Let C be a smooth, absolutely irreducible genus 3 curve defined over a number field M . Suppose that the Jacobian of C has complex multiplication by a sextic CM-field K . Suppose further that K contains no imaginary quadratic subfield. We give a bound on the primes p of M such that the stable reduction of C at p contains three irreducible components of genus 1. We will also discuss some recent improvements of this result in order to remove the condition of the imaginary quadratic field and the condition of the kind of stable reduction.

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