# Teoria de Nombres computacional

**Referència:** González J., Guàrdia J.; Genus two curves with quaternionic multiplication and modular Jacobian. *Mathematics of Computation*, **78(265)** (2009), pp. 575–589.

**Abstract:** We describe a method to determine all the isomorphism classes of principal polarizations of the modular abelian surfaces $A_f$ with quaternionic multiplication attached to a normalized newform $f$ without complex multiplication. We include an example of $A_f$ with quaternionic multiplication for which we find numerically a curve $C$ whose Jacobian is $A_f$ up to numerical approximation, and we prove that it has quaternionic multiplication and is isogenous to $A_f$.

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**Referència:** Guàrdia J.; Jacobian Nullwerte, periods and symmetric equations for hyperelliptic curves. *Annales de l'Institut Fourier*, **57(4)** (2007), pp. 1253–1283.

**Abstract:** We propose a solution to the hyperelliptic Schottky problem, based on the use of Jacobian Nullwerte and symmetric models for hyperelliptic curves. Both ingredients are interesting on its own, since the first provide period matrices which can be geometrically described, and the second have remarkable arithmetic properties.

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**Referència:** Guàrdia J.;Jacobi Thetanullwerte, periods of elliptic curves and minimal equations. *Mathematical Research Letters* , **11(1)** (2004), pp. 115–123.

**Abstract:** We introduce a family of modular functions which provide the coefficients of algebraic Weierstrass equations for complex toruses corresponding to elliptic curves defined over a number field. The equations built with these new modular functions have good arithmetical properties, since they are minimal global equations outside 2 and 3.