1050-11-85 **Álvaro Lozano-Robledo*** (alozano@math.uconn.edu), 196 Auditorium Rd., Dept. of Math., U-3009, University of Connecticut, Storrs, MA 06269. *Bernoulli-Hurwitz numbers, Wieferich primes and Galois representations.*

Let K be a quadratic imaginary number field with discriminant $D_K \neq -3, -4$ and class number one. Fix a prime $p \geq 7$ which is unramified in K. Given an elliptic curve $A/\mathbb{Q}$ with complex multiplication by K, let $\overline{\rho_A}\colon \mathrm{Gal}(\overline{K}/K(\mu_{p^\infty})) \to \mathrm{SL}(2, \mathbb{Z}_p)$ be the representation which arises from the action of Galois on the Tate module. We will show that, for all but finitely many inert primes p, the image of a certain deformation $\rho_A\colon \mathrm{Gal}(\overline{K}/K(\mu_{p^\infty})) \to \mathrm{SL}(2, \mathbb{Z}_p[[X]])$ of $\overline{\rho_A}$ is "as large as possible", that is, it is the full inverse image of a Cartan subgroup of $\mathrm{SL}(2, \mathbb{Z}_p)$. If p splits in K, then the same result holds as long as certain Bernoulli-Hurwitz number is a p-adic unit which, in turn, is equivalent to a prime ideal not being a Wieferich place. The proof rests on the theory of elliptic units of Robert and Kubert-Lang, and on the two-variable main conjecture of Iwasawa theory for quadratic imaginary fields. (Received February 26, 2009)