Curves of Genus 2 with Elliptic Differentials and the Height Conjecture for Elliptic Curves

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Errata et Addenda

1 October 1992

p. 30, line 10-:	Replace "on" by "an".
p. 31, line 4:	Replace "A_2" by "$\mathcal{A}_2$".
p. 31, line 11:	Replace "J_E" by "$J_{E'}$".
p. 31, line 12:	Replace "$f^*\|E[N]$" by "$f^*_{\|E[N]}$".
p. 31, line 13:	Replace "ist" by "is" .
p. 31, line 10-:	The action is actually a "twisted diagonal action." This means that $g \in \Gamma_N$ acts as follows: $g(x,y) = (g(x), g^*(y))$, where $g^* = wgw^{-1}$ and $w = \left(\begin{smallmatrix} 1 & 0 \\ 0 & -1 \end{smallmatrix}\right)$.
p. 31, line 5-:	Replace "equiariant" by "equivariant".
p. 32, line 8-:	Replace "2" by "$2N^3$".
p. 33, line 12:	The formula should read as follows:

$$\partial M_2^{ell}(N) = \pi\Big(\bigcup_{1\le k<N} \mathrm{Graph}(\langle k\rangle \circ \tilde{T}_{k(N-k)})\Big).$$

Here $\langle k\rangle \in Aut(X(N))$ denotes the automorphisn induced by $A_k \in \mathrm{Sl}_2(\mathbb{Z})$ where $A_k \equiv \mathrm{diagonal}(k^{-1}, k) \pmod N$, and

$$\tilde{T}_m = \sum_{\substack{d^2|m \\ (d,N)=1}} \langle d\rangle \circ T_{m/d^2}$$

where T_n denotes the usual Hecke Operator defined by the double coset $\Gamma(N)\left(\begin{smallmatrix} 1 & 0 \\ 0 & n \end{smallmatrix}\right)\Gamma(N)$. Also, $\pi : X(N) \times X(N) \to B_{1,1}(N)$ denotes the projection map.

p. 33, line 2-:	The second line under the product sign is so small that it is difficult to read. It should be: "$p \not| k(N-k)/(k,N)^2$".
p. 36, line 6:	Here the norm $\|\| \ \|\|$ has the same meaning as in Faltings' paper. Thus δ_2 is $Sp_4(\mathbb{Z})-$invariant, and hence becomes a function on the quotient space A_2.
p. 36, line 9:	This isomorphism is to be understood as an isomorphism of polarized abelian varieties, with $E_1 \times E_2$ having the product polarization.
p. 38, line 11-:	In a recent preprint N. Elkies has shown that the ABC- Conjecture also implies the Mordell Conjecture (Faltings' Theorem).

p. 39, line 3: Note that the Noether formula on E_2 reads $12h(E_2) = \delta(E_2)$, so the inequality in c) could also be written as:

$$\delta_1(C) \geq -h(E_2) + c_4.$$

p. 39, line 4: Replace "valied" by "valid".

p.39, line 5: There is a serious typographical error here: "δ_1" should be "δ_0", where $\delta_0 = \delta - \delta_1$. Thus, equation (4) should read:

$$h(C) = \frac{1}{7}(\omega.\omega) + \frac{1}{14}(\delta - \delta_1).$$

Using the Noether formula, this equation is equivalent to:

$$2h(C) = (\omega.\omega) - \delta_1. \tag{4}$$

p. 39, line 9: Replace "From 3) and 4)" by "From 3c) and (4)".

p. 39, line 10: Replace equation (5) by:

$$2h(C) \leq (\omega.\omega) + h(E_2) + c_5 \tag{5}$$

p .39, line 11: Insert: "and so we obtain by 3a) that

$$h(E_2) \leq \omega^2_{C/B} + c_6,'' \tag{6}$$

p. 39, line 13-: Replace "1880" by "1380".