

Correction and Supplement to the paper “Complex Multiplication Formulae for Hyperelliptic Curves of Genus Three”

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Correction.

- p.382, l.17, The sentence should be “Unfortunately the existence ... is generally unknown.”
- p.383, l.4, “ $\sigma(v + P_0)$ ” should be “ $\sigma(b(v + P_0))$ ”.
- p.383, l.5, “ $\sigma(v + P_0)$ ” should be “ $\sigma(b(v + P_0))$ ”.
- p.385, l.8, “[13, p.3.77]” should be “[15, p.3.77]”.
- p.386, l.4, “linearly equivalent” should be “linear equivalence”.
- p.387, l.5, “[1]” should be “[2]”.
- p.389, l.-12, “ $\frac{d^{\ell+1}}{dt^{\ell+1}}$ ” should be “ $\frac{d^\ell}{dt^\ell}$ ”.
- p.389, l.-9, “ $(i, n_1 + \cdots + n_{j-1} + \ell)$ -entry” should be “ $(n_1 + \cdots + n_{j-1} + \ell, i)$ -entry with $1 \leq \ell \leq n_j$ ”.
- p.389, l.-4, “ $0 \leq \ell \leq n$ ” should be “ $1 \leq \ell \leq n_j - 1$ ”.
- p.389, l.-2, “ $\Gamma(C, \mathcal{O}(D))$ ” should be “ $\Gamma(C, \Omega^1(-D))$ ”.
- p.390, l.8, “non-singular” should be “singular” and “ $(0, \dots, 0)$ ” should be “ $(0, 0, 0)$ ”.
- p.390, l.-5, “ $-\lambda_2 u_1^2 u_2^2$ ” should be “ $-\frac{\lambda_2}{2} u_1^2 u_2^2$ ”.
- p.390, l.-5, “ $-\frac{\lambda_3}{3} u_1 u_3^3$ ” should be “ $-\frac{\lambda_3}{3} u_1 u_2^3$ ”.
- p.390, l.-4, “ $-\frac{2\lambda_2}{3} u_1^3 u_3$ ” should be “ $+\frac{\lambda_2}{6} u_1^3 u_3$ ”.
- p.391, l.-9, “ $\frac{\partial^4}{\partial u_2^4}$ ” should be “ $\frac{\partial^4}{\partial u_3^4}$ ”.
- p.392, l.-4, “ $\sigma_{133}(P) = \left(\frac{\sigma_{32}\sigma_{21}}{\sigma_2} - \lambda_7 \frac{\sigma_1^2}{\sigma_2} \right) (P)$ ”, should be “ $\sigma_{133}(P) = \left(\frac{\sigma_{32}\sigma_{31}}{\sigma_2} + \lambda_7 \frac{\sigma_1^2}{\sigma_2} \right) (P)$ ”.
- p.392, l.-3, “.”, should be “,”.
- p.392, l.-1, “ $\frac{\sigma_1\sigma_2 - \sigma_{12}\sigma}{\sigma_2^2 - \sigma_{22}\sigma} (P) = \frac{\wp_{12}}{\wp_{22}} (P)$ ” should be “ $\frac{\sigma_1\sigma_3 - \sigma_{13}\sigma}{\sigma_2\sigma_3 - \sigma_{23}\sigma} (P) = \frac{\wp_{13}}{\wp_{23}} (P)$ ”.
- p.393, l.1, “ $\frac{\sigma_3\sigma_2 - \sigma_{32}\sigma}{\sigma_2^2 - \sigma_{22}\sigma} (P) = \frac{\wp_{32}}{\wp_{22}} (P)$ ” should be “ $\frac{\sigma_3^2 - \sigma_{33}\sigma}{\sigma_2\sigma_3 - \sigma_{23}\sigma} (P) = \frac{\wp_{33}}{\wp_{23}} (P)$ ”.
- p.393, l.2, “it must be $\sigma_1(P) = \sigma_3(P) = 0$ and so $\sigma_2(P) \neq 0$ by virtue of 1.7.2.” should be “it must be $\sigma_2(P) \neq 0$ and $\sigma_3(P) = 0$ by virtue of 1.3.1(3) and 1.7.2(2).”
- p.394, l.4, “ λ_6 ” should be “ λ_{2g} ”.
- p.396, l.5, “ ${}^t w''$ ” should be “ ${}^t \omega''$ ”.
- p.396, l.16, “ ${}^t w''$ ” should be “ ${}^t \omega''$ ”.
- p.397, l.-13, “ $P_j \neq \bar{P}_j$ ” should be “ $P_j \neq \bar{P}_i$ ”.
- p.397, l.-13, “pp.3.30” should be “p.3.30”.
- p.397, l.-10, “ $(x - x(P))/G$ ” should be “ $(x - x(P)) \cdot G$ ”,
and “ $Q_1 + \cdots + Q_{g-1} - (n-2)\infty$ ” should be “ $Q_1 + \cdots + Q_{g-1} + \bar{P} - (n-1)\infty$ ”.
- p.398, l.2, “ $-\frac{2}{u_5^2}$ ” should be “ $-\frac{2}{u_2^5}$ ”.
- p.398, l.-9, “ $\psi(v + P)$ ” should be “ $\psi_3(v + P)$ ”.
- p.401, l.15, “ $) = ($ ” should be “ $) = ($ ”.
- p.404, l.-2, “4.2.1” should be “4.2.4”.
- p.404, l.-1, “4.2.1” should be “4.2.4”.
- p.405, l.16, “Let P_0 be a point on C such that $x(P_0) = 0$ ” should be inserted.
- p.405, l.17, The last “ P ” should be “ P_0 ”.
- p.409, l.-5, “ $\mathbf{Q}[\wp_{ij}(u), \wp_{ij}(v), \wp_{ijk}(u), \wp_{ijk}(v) | i, j, k = 1, \dots, g]$ ” should be “ $\mathbf{Q}[\wp_{ij}(u), \wp_{ijk}(u), \wp_{ijk\ell}(u), \dots | i, j, k, \ell, \dots = 1, \dots, g]$ ”.
- p.413, l.6, “ $y^2 = x^5 + 1/2$ ” should be “ $y^2 = x^5 + 1/4$ ”.
- p.413, l.7, “[ζ]” should be “[ζ]”.
- p.415, l.8, “ $b \in \mathbf{Z}[\zeta]$ ” should be “ $b \in \mathbf{Z}[\zeta]$ and $\equiv 1 \pmod{(1 - \zeta)}$ ”.
- p.415, l.-12, “ $\chi(b^{1+\tau^{-1}} - 1)$ ” should be “ $\chi((b^{1+\tau^{-1}} - 1)P_0)$ ”.
- p.415, l.-1, “ $+2\sigma_1(u)\sigma_2(u)\sigma_{12}(u)$ ” should be “ $-2\sigma_1(u)\sigma_2(u)\sigma_{12}(u)$ ”.
- p.416, l.8, “ $\psi_{b^{1+\tau^{-1}}}(u)$ ” should be “ $\psi_{b^{1+\tau^{-1}}}(u)^3$ ”.
- p.418, l.3, “ $(d^\circ \geq 3)$ ” should be “ $(d^\circ \geq 4)$ ”.
- p.419, l.7, “ $c'_2 u_1^2$ ” should be “ $c'_1 u_1^2$ ”.
- p.421, l.-7, The second left bracket should be replaced by bigger one.
- p.422, l.-13, The last “ $)$ ” should be “ $)$ ”.
- p.423, l.1, “ $b \in \mathbf{Z}[\zeta]$ ” should be “ $b \in \mathbf{Z}[\zeta]$ and $\equiv 1 \pmod{(1 - \zeta)}$ ”.

Supplement.

The function φ in Theorem 6.2.5 (resp. 7.2.5) can be written simply as $\frac{1}{2}\wp_{12}\wp_{111} + \frac{1}{2}\wp_{22}\wp_{222}$ (resp. as $(\frac{1}{4} + \frac{1}{2}\Delta)\wp_{111} + (-3\wp_{13} + \wp_{22})\wp_{222}$) by (11) and (14) of Proposition 1.5.1.