

Correction to the thesis

Yoshihiko Matsumoto

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This is a note describing the corrections needed to my thesis, which is entitled “Asymptotically complex hyperbolic Einstein metrics and CR geometry” and was submitted to The University of Tokyo in March 2013 for doctoral degree. The original thesis is downloadable at

<http://www.math.sci.osaka-u.ac.jp/~matsumoto/docs/thesis.pdf>

All the modifications made in this note are minor, at least from the perspective of the thesis. However, for the purpose of future reference, I would like to clarify the errors that I am aware of.

I am thankful to Taiji Marugame, who actually suggested these corrections.

- Page 50 — The last line should read

$$\bar{R}_\alpha{}^\beta{}_{\sigma\tau} = 2\rho^2 V_\alpha{}^\beta{}_{\sigma\tau}, \quad \bar{R}_\alpha{}^\beta{}_{\sigma\bar{\tau}} = -2\rho^2 V_\alpha{}^\beta{}_{\sigma\bar{\tau}}.$$

The next equation, (6.6), is deduced using the correct value of $\bar{R}_\alpha{}^\beta{}_{\sigma\tau}$ (and $\bar{R}_\alpha{}^\beta{}_{\sigma\bar{\tau}}$ is not used at all).

- Page 54 — The “value” for the entry $D^\gamma{}_{0\alpha}$ in Table 6.2 should read

$$\frac{i}{2}\delta_\alpha{}^\gamma + \frac{i}{2}\delta_\alpha{}^\gamma\varphi_{00} - \frac{i}{2}\varphi_\alpha{}^\gamma.$$

This correct value is used in the subsequent computations.

- Page 55 — Equations (6.14d) and (6.14g) should respectively read

$$D^L{}_{K0}D^K{}_{L0} \equiv -\frac{1}{2}(n+4) + 2\rho^4|A|^2 + (\rho\partial_\rho - n - 2)\varphi_{00} + \varphi_\alpha{}^\alpha,$$

where $|A|^2 = A_{\alpha\beta}A^{\alpha\beta}$, and

$$D^L{}_{K\alpha}D^K{}_{L\beta} \equiv -i\rho^2 A_{\alpha\beta} + \frac{1}{2}\rho\partial_\rho\varphi_{\alpha\beta}.$$

Regarding (6.14g), the correct value of $D^L{}_{K\alpha}D^K{}_{L\beta}$ is used thereafter. For (6.14d), that is not the case. The equality “ $E_{00} = \dots$ ” in Lemma 6.5 should read

$$E_{00} \equiv -2\rho^4|A|^2 - \frac{1}{8}((\rho\partial_\rho)^2 - (2n+4)\rho\partial_\rho - 4n)\varphi_{00} + \frac{1}{2}(\rho\partial_\rho - 2)\varphi_\alpha{}^\alpha,$$

and the 5th line of page 62 should read

$$E_{\infty\infty}^{(1)} = E_{\infty 0}^{(1)} = E_{\infty\alpha}^{(1)} = 0, \quad E_{00}^{(1)} = -2\rho^4|A|^2.$$

However, this causes no modification to (7.3).

- Page 57 — Equation (6.20b) should read

$$D^0_{\alpha\bar{\beta}} = -\frac{i}{2}h_{\alpha\bar{\beta}}.$$

See also the entry $D^0_{\alpha\bar{\beta}}$ in Table 6.2, which is correct (note also that, in the 7th line from the bottom of page 57, “Table 6.4” should be “Table 6.2”). The correct value of $D^0_{\alpha\bar{\beta}}$ is used in the subsequent computations.