Erratum to the paper "On Asymptotic Weil-Petersson Geometry of Teichmüller Space of Riemann Surfaces", Asian J. Math., vol. 11, no. 3, 459-484 (2007)

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Nov. 10, 2008

The purpose of this note is to correct a misstatement in one of the theorems in the paper. The original Theorem 1.1 was stated as the following:

Theorem 1. *Let ℓ be the systole on closed surface Σ, and K be the Weil-Petersson sectional curvature of Teichmüller space $\mathcal{T}$, there exists a constant $C > 0$ such that*

$$-(C\ell)^{-1} \leq K \leq -C\ell.$$

Moreover, there are tangent planes with the Weil-Petersson curvatures of the orders $O(\ell)$ and comparable to ℓ^{-1}, and hence the Weil-Petersson sectional curvature has neither negative upper bound, nor lower bound.

This theorem should have been stated as:

Theorem. *Let ℓ be the systole on closed surface Σ, and K be the Weil-Petersson sectional curvature of Teichmüller space $\mathcal{T}$, there exists a constant $C > 0$ such that*

$$-(C\ell)^{-1} \leq K.$$

Moreover, there are tangent planes with $|K| = O(\ell)$ and tangent planes with sectional curvatures comparable to ℓ^{-1}, and hence the Weil-Petersson sectional curvature has neither negative upper bound, nor lower bound.

The problem is that we are unable to control the uniform flat rate for asymptotically flat sections. The incorrect proof for that part of the statement was removed during the revision of the paper but the corresponding part in the statement of the Theorem 1.1 remained due to largely my neglect during the revision.

Recently, Scott Wolpert in [1] improved our results on asymptotic flatness to $O(\ell^2)$, i.e., there are tangent planes with $|K| = O(\ell^2)$. I am deeply grateful to him for pointing out the error.

References

[1] Scott A. Wolpert, Understanding Weil-Petersson curvatures, *preprint arXiv.org/0809.3699*, (2008)