ERRATUM TO: CONCORDANCE AND ISOTOPY OF METRICS WITH POSITIVE SCALAR CURVATURE

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Thomas Schick has brought to my attention that Lemmas 6.8 and 6.9 of original article as they stand are not correct. In more detail, Lemma 6.8 claims the following:

If $(W, \tilde{g})$ is a connected Riemannian manifold with a boundary $(\partial W, g)$ such that

- (a) $R_{\tilde{g}} \equiv 0$ on W ,
- (b) $\int_{\partial W} h_{\tilde{g}} d\sigma_g > 0$, where $g = \tilde{g}|_{\partial W}$.

Then the conformal manifold $(W, [\tilde{g}])$ cannot be of a zero conformal class.

This statement is false. Indeed, in this case the first eigenvalue μ_1 coincides with a minimum of the Rayleigh quotient

$$\frac{\int_W a_n |\nabla_{\tilde{g}} f|^2 d\sigma_{\tilde{g}} + 2(n-1) \int_{\partial W} h_{\tilde{g}} f^2 d\sigma_g}{\int_{\partial W} f^2 d\sigma_g}, \quad f \not\equiv 0. \quad (1)$$

Since the function $h_{\tilde{g}}$ may change a sign, the condition (b) does not imply that integral $\int_{\partial W} h_{\tilde{g}} f^2 d\sigma_g$ (and the quotient (1)), is positive for all functions f . In other words, the conditions (a) and (b) do not exclude the case $\mu_1 = 0$.

Since Lemma 6.8 provides a basis for the main argument to prove Theorem 2.9, the statement of Theorem 2.9 remains unproven.

Because Theorem 2.9 constitutes a necessary condition to prove Theorem A, this error means that the main results of the paper, Theorem A and its corollary, Theorem B, are not proven yet and have to be downgraded to conjectures.

I am grateful to Thomas Schick for pointing out the mistake.

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