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ERRATA

Erratum to: "Regularized trace of the perturbed Laplace-Beltrami operator on two-dimensional manifolds with closed geodesics" [*Mathematical Notes* 93 (3), 397–411 (2013)]

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In [1], a technical error of the author in the description of the asymptotics of the series following formula (3.1) led to the omission of a term, which resulted in its absence in the final formula.

The phrase following formula (3.21): "Consider the second summand on the right-hand side. It follows from [19] that for the inner series, as $k \to \infty$,

$$\sum_{i=0}^{2k}(\lambda_{ki}-k(k+1))^2 \sim (2\pi)^{-2}\biggl(k\int_{S^*ML}(q^{av})^2\,dv+\cdots\biggr),\text{"}$$

must be replaced by "Consider the second summand on the right-hand side. It follows from [19] and [21] that, for the inner series, as $k \to \infty$

$$\sum_{i=0}^{2k}(\lambda_{ki}-k(k+1))^2 \sim (2\pi)^{-2}k\biggl(\int_{S^*ML}(q^{av})^2\,dv+\int_{S^*ML}(\sigma^{av})^2\,dv\biggr)+O(1),\text{"}$$

The reference to the paper [21] is given by the reference [2] at the end of the text of this Erratum, and the function σ^{av} is defined below in the theorem.

In the present text, the revised statement of the main theorem is presented, taking into account the missing term.

Theorem 1. *Let ML be a manifold given by a functional family of smooth almost Liouville metrics on the sphere and defined by formulas* (2.2). *If q is an infinitely differentiable complex-valued function on ML, then the eigenvalues of the operator $-\Delta+q$ satisfy the equality*

$$\begin{aligned}\sum_{k=0}^{\infty}\sum_{i=0}^{2k}\biggl(\lambda_{ki}-k(k+1)-\frac{1}{4\pi}\iint_{ML}q(v_2,v_3)\sqrt{\det g}\,dv_2\,dv_3\biggr)\\ =\frac{1}{16\pi^2}\int_{S^*ML}(q^{av})^2\,dv+\frac{1}{16\pi^2}\int_{S^*ML}(\sigma^{av})^2\,dv\\ -\frac{1}{60\pi}\iint_{ML}(\Delta\gamma(ML)+\gamma^2(ML)-\gamma(ML))\sqrt{\det g}\,dv_2\,dv_3\\ -\frac{1}{24\pi}\iint_{ML}(-\Delta q(v_2,v_3)+3q^2(v_2,v_3)-2q(v_2,v_3)(\gamma(ML)-1))\sqrt{\det g}\,dv_2\,dv_3,\end{aligned}$$

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where

$$\gamma(ML) = \frac{2(R(v_3) - Q(v_2)) + (v_2 - v_3)(R'(v_3) + Q'(v_2))}{(v_2 - v_3)^3}$$

is the Gaussian curvature of ML *and*

$$\sqrt{\det g} = \frac{v_2 - v_3}{4\sqrt{-Q(v_2)R(v_3)}}$$

is the root of the determinant of the matrix of the metric tensor, S^*ML *is the total space of the unit sphere bundle in the cotangent space,* dv *is the canonical form of the volume on* S^*ML*, and*

$$q^{av} = \frac{1}{2\pi}\int_0^{2\pi} (\exp t\Xi)^*(q)\,dt;$$

here Ξ *is the Hamiltonian vector field on the cotangent bundle* $T^*ML \setminus \{0\}$ *defined by the Riemannian structure on* ML*,*

$$\sigma^{av} = \frac{1}{2\pi}\int_0^{2\pi} (\exp t\Xi)^*(\sigma)\,dt,$$

where

$$\sigma = \frac{1}{4}\biggl(\gamma(ML) - 1 + \biggl[\frac{1}{3}(\gamma(ML))_{\mathrm{v}} u^3 \int_0^r (\gamma(ML))_{\mathrm{v}} J^3\,ds - (\gamma(ML))_{\mathrm{v}} u^2 J \int_0^r (\gamma(ML))_{\mathrm{v}} u J^2\,ds\biggr]\biggr),$$

v *is the unit vector of the normal to the geodesic* τ*,* $J(r,\omega)$ *is the volume density in geodesic polar coordinates, i.e.,* $dvol(\tau) = J(r,\omega)\,dr\,d\omega$*, and* u *and* v *are the fundamental solutions of the Jacobi equation along the geodesic* τ *satisfying the conditions*

$$\begin{pmatrix} u(0) & v(0) \\ \dot{u}(0) & \dot{v}(0) \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}.$$

REFERENCES

1. T. V. Zykova, Math. Notes **93** (3), 397-411 (2013).
2. S. Zelditch, J. Funct. Anal. **143** (2), 415 (1997).