

Corrigendum to “Reproving Friedlander’s inequality with the de Rham complex”

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Abstract. We address an issue in the proof of Lemma 4.1 in [J. Spectr. Theory 15 (2025), no. 4, 1593–1613].

In the paper [1], the authors made an erroneous claim in the proof of Lemma 4.1. In the proof, the normal derivative ∂_{x_n} in equation (4.2) should be a covariant derivative. In particular, the equation environment preceding equation (4.2) will reach the conclusion that for $u \in \text{Dom}(q_{k,a})$ we have an equality

$$q_{k,a}(u) - \tilde{q}_k(u) = \langle Ku, u, \rangle_{L^2(\partial\Omega, \wedge^k T^*\partial\Omega)}$$

for a curvature like term K that in general is non-zero. For instance, in dimension $n = 2$, we have that $K = \kappa$ where κ is the curvature of the curve $\partial\Omega \subseteq \mathbb{R}^2$, in accordance with [2, Section 3] up to the different sign convention in [2].

The authors see no immediate way of correcting the faulty proof of in [1, Lemma 4.1]. Since Lemma 4.1 plays an important role in the proof of equation (1.1) on p. 13 of the paper, that proof is no longer valid. The faulty proof of Lemma 4.1 has no further consequence to the paper, with Lemma 4.3 and Section 5 remaining correct as they stand. A corrected version of the paper, without the erroneous proof of Lemma 4.1, has been uploaded to the arXiv.

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References

- [1] M. Fries, M. Goffeng, and G. Miranda, [Reproving Friedlander’s inequality with the de Rham complex](#). *J. Spectr. Theory* **15** (2025), no. 4, 1593–1613 Zbl [1577.35267](#) MR [4980388](#)
- [2] J. Rohleder, A new approach to the hot spots conjecture, 2021, arXiv:[2106.05224](#)

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