

Recoverability for optimized quantum f -divergences**Referee Affiliation**

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Amendments required before acceptance

COMMENTS TO THE EDITOR(S)

COMMENTS TO THE AUTHOR(S)

The authors addressed all of my comments in a suitable way and the revisions increased readability of the paper.

I only have two additional comments, that I did not notice in the previous report:

- (a very minor comment) p. 11, lines 1-5: to be very precise, [Pet86a] and [Pet88] proved the statement only for some specific operator convex functions. But it can be easily extended to all regular op. convex functions, from the proof there.

- I am a bit confused by the argument used for the proof of Eq. (80) on p. 46-47. The first displayed equation on p. 47 seems to suggest that

$\lim_{\epsilon \rightarrow 0} \tilde{Q}_f(\rho || \sigma + \epsilon \rho) = \inf_{\epsilon > 0} \tilde{Q}_f(\rho || \sigma + \epsilon \rho).$

But for example in the case of sandwiched Renyi relative entropy for $\alpha > 1$ \tilde{Q}_α is -decreasing- in the second argument (e.g. Thm. 3.16 (7) in Hiai's new monograph Quantum f-divergences in von Neumann algebras). Also the infimum in the second line of the equation may not be attained at $\epsilon=0$, as f is operator -anti- monotone?

With these comments clarified, the paper can be recommended for publication.

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