Uncertainty principle and quantum Fisher information

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Abstract A family of inequalities, related to the uncertainty principle, has been recently proved by S. Luo, Z. Zhang, Q. Zhang, H. Kosaki, K. Yanagi, S. Furuichi and K. Kuriyama. We show that the inequalities have a geometric interpretation in terms of quantum Fisher information. Using this formulation one may naturally ask if this family of inequalities can be further extendend, for example to the *RLD* quantum Fisher information. We show that this is impossible by producing a family of counterexamples.

Keywords Uncertainty principle · Monotone metrics · Quantum Fisher information · Wigner–Yanase–Dyson information