On a Recent Conjecture by Z. Van Herstraeten and N. J. Cerf for the Quantum Wigner Entropy

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I will address a recent conjecture on the quantum Wigner entropy, that is the Shannon entropy associated with positive Wigner functions. The conjecture states that the Wigner entropy is bounded below and that its minimum can be attained only by pure Gaussian states. I will give a proof that the Wigner entropy is indeed bounded below and obtain a lower bound which is not very distant from the conjectured value. As a by-product I extend the definition of Wigner entropy to states which do not have a positive Wigner function. This is joint work with N.C. Dias.