The nonlinearity of quantum dynamical entropy

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We will show that the quantum dynamical entropy introduced by Slomczynski and Zyczkowski is nonlinear in the time interval between successive measurements of a quantum dynamical system. This is in contrast to Kolmogorov-Sinai dynamical entropy for classical dynamical systems, which is linear in time. We will use the quantum dynamical entropy to show quantitatively that measurements perturb a quantum system.

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