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Quantum Thermodynamics of Information AUSTIN DANIEL, YURI ROSTOVTSEV, Department of Physics, University of North Texas — Many apparent violations of the second law of thermodynamics can be resolved by treating information as a thermodynamic variable. We consider systems in which quantum coherent effects suggest the design of engines with efficiencies exceeding that of the Carnot cycle and compare the results to the thermodynamic cost of information. Our goal is to show the cost related to the information required to prepare such a system balances out these violations such that the second law still holds.

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