

Abstract Submitted
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Average work measurement below the Landauer limit for memory erasure¹ MOMČILO GAVRILOV, JOHN BECHHOEFER, Simon Fraser University — Landauer's Principle states that erasing a one-bit memory requires an average work of at least $kT \ln 2$. Recent experiments have confirmed this prediction for a one-bit memory represented by a symmetric double-well potential. However, if a memory is represented by a non-equilibrium state in an asymmetric double-well potential, theoretical studies predict that one can measure work below $kT \ln 2$. Using a feedback trap, we have confirmed this prediction. Surprisingly, we found that two different erasure protocols give two different values for the asymptotic work. We can explain this result by noting that one protocol is symmetric with the respect to time reversal and the other is not.

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Momcilo Gavrilov
Simon Fraser University

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