"Demonic" challenge: Landauer's erasure-dissipation

Laszlo B. Kish (1), Claes-Göran Granqvist (2), Sunil P. Khatri (1)

(1) Texas A&M University, College Station; (2) Uppsala University, Sweden

On November 12, 2013, a public debate on reversible computation and Landauer theorem was held and the conference Hot Topics of Physical Informatics (HoTPI-2013, Changsha, China). We address the following questions in that debate:

Szilard Engine, Maxwell demon, Landauer principle: related mistakes.

Energy dissipation limits of control and that of to run a switch.

Are reversible computers possible or their concept violates thermodynamics?

Is Landauer's erasure-dissipation principle valid; or the same is true for writing the information; or it is simply invalid?

Does (non-secure) erasure of memories dissipate more heat, or the writing of the same amount of information?