

# Laser Maxwells Demon: information cooling of neutral atoms

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A Maxwells demon is a device that gets information and being clever to use it in thermodynamic advantage, in contradiction of the Second Law of Thermodynamics. A Maxwells demon first appeared in Maxwells Theory of Heat (1871) and has been the subject of considerable discussion over more than hundred years. In this work we consider the exchange of an entropy between a laser light and an individual atom and show that without a violation of the Second Law of Thermodynamics it is possible to organize the entropy exchange between the atoms and the laser light with the result of atom cooling. We call this method of lowering of temperature of the neutral atoms as the information cooling.