



A New Entropic Force Scenario and Holographic Thermodynamics

<http://www.firstlight.cn> 2010-11-30

We propose a new holographic program of gravity in which we introduce a surface stress tensor. Our proposal differs from Verlinde's in several aspects. First, we use an open or a closed screen, a temperature is not necessary but a surface energy density and pressure are introduced. The surface stress tensor is proportional to the extrinsic curvature. The energy we use is Brown-York energy and the equipartition theorem is violated by a non-vanishing surface pressure. We discuss holographic thermodynamics of a gas of weak gravity and find a chemical potential, and show that Verlinde's program does not lead to a reasonable thermodynamics. The holographic entropy is similar to the Bekenstein entropy bound.

[存档文本](#)