

Abstract Submitted
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A Challenge to Entropic Gravity JONATHAN ROVETO, GERARDO MUNOZ, California State University, Fresno — In a recent publication, Erik Verlinde attempts to show that gravity should be viewed not as a fundamental force, but rather as an emergent thermodynamic phenomenon arising from an unspecified microscopic theory via equipartition and holography. We present a challenge to his reformulation of gravity. A detailed examination of Verlinde's derivation leads to a number of questions that severely weaken the claim that such a theory correctly reproduces Newton's laws or Einstein gravity. In particular, we find that neither Newtonian gravity nor the Einstein equations are uniquely determined using Verlinde's postulates.

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