Abstract

Thermodynamics and Gravity

Jessica Santiago* and Matt Visser*

* School of Mathematics and Statistics, Victoria University of Wellington; PO Box 600, Wellington 6140, New Zealand.

February 15, 2019

In this talk we will review Tolman’s relation for temperature gradients in thermal equilibrium states. We will do that by presenting a simplified derivation of this effect, based on the relativistic Euler equation. This will lead naturally to an extension of Tolman-like thermal gradients to the case of stationary spacetimes for fluids with general four-velocities. We will then explore the connections between thermodynamics and gravity, looking at gravitational redshifts, observer-dependent temperatures and gravity’s universality.

References
