

# Geometrothermodynamics

**Hernando Quevedo**<sup>1</sup>

<sup>1</sup>National Autonomous University Of Mexico, MEXICO CITY, Mexico

I present the fundamentals of geometrothermodynamics (GTD), a formalism that unifies the geometric structures of the thermodynamic phase manifold and the equilibrium manifold in a consistent and Legendre-invariant manner. This allows us to associate Legendre invariant Riemannian metrics to any thermodynamic system in such a way that quasi-static processes, thermodynamic interaction, and the stability properties of the system can be described in terms of geometric concepts. I present a review of the applications of GTD in classical thermodynamics, quantum systems, cosmology, and black hole physics.