1125-37-1846   **David Constantine**, **Jean-Francois Lafont** and **Daniel J. Thompson***
(`thompson@math.osu.edu`). *Thermodynamic formalism for geodesic flow on locally CAT(-1)*
spaces.

Locally CAT(-1) spaces are geodesic metric spaces satisfying a certain metric notion of negative curvature. These spaces are not necessarily manifolds, covering examples such as graphs equipped with an interior metric, yet they still have a geodesic flow defined on them. While there are analogies with the dynamics of the geodesic flow on a negative curvature Riemannian manifold, the full power of uniformly hyperbolic dynamics is not currently available in this setting: there is still a coding of the geodesic flow by a suspension flow over a shift of finite type, but rather than being a conjugacy, it is via an orbit semi-equivalence.

In general, orbit equivalence is too weak a relationship to preserve any refined dynamical information. However, we are able to use a geometric argument to show that the geodesic flow inherits the weak specification property from the suspension flow. We use the specification property directly on the geodesic flow for CAT(-1) spaces, obtaining thermodynamic results analogous to the negative curvature Riemannian setting. In particular, we prove uniqueness of equilibrium states for Holder potential functions, the large deviations principle, and the equidistribution of weighted periodic orbits. (Received September 19, 2016)