

The pressure metric for convex representations

Martin Bridgeman, Boston College

Using the thermodynamics formalism, we introduce a notion of intersection for convex Anosov representations, show analyticity results for the intersection and the entropy, and rigidity results for the intersection. We use the renormalized intersection to produce an $\text{Out}(G)$ -invariant Riemannian metric on the smooth points of the deformation space of convex, irreducible representations of a word hyperbolic group G into $\text{SL}(n, \mathbb{R})$ whose Zariski closure contains a generic element. In particular, we produce mapping class group invariant Riemannian metrics on Hitchin components which restrict to the Weil-Petersson metric on the Fuchsian loci. Moreover, we produce $\text{Out}(G)$ -invariant metrics on deformation spaces of convex cocompact representations into $\text{PSL}(2, \mathbb{C})$ and show that the Hausdorff dimension of the limit set varies analytically over analytic families of convex cocompact representations into any rank 1 semi-simple Lie group.

This is joint with R. Canary, F. Labourie and A. Sambarino.