The pressure metric for convex representations
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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 Out(G)-invariant Riemannian metric on the smooth points of the deformation space of convex, irreducible representations of a word hyperbolic group G into SL(n,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 Out(G)-invariant metrics on deformation spaces of convex cocompact representations into PSL(2,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.