1065-37-86 **Aaron W Brown*** (aaron.brown@tufts.edu), Department of Mathematics, Tufts University, 503 Boston Ave, Medford, MA 02155. *Rigid properties of some measures on the torus.*

We present examples of singular measures on the 2-torus such that each measure imposes rigid constraints on the group of measure preserving diffeomorphisms. All our measures are constructed as invariant measures for an auxiliary non-linear Anosov diffeomorphism $f\colon \mathbb{T}^2 \to \mathbb{T}^2$. In the first example, we construct equilibrium states for f such that the group of measure preserving diffeomorphisms is virtually infinite cyclic. In the second example, we show that, for a larger class of measures, the set of entropies for all measure preserving diffeomorphisms has a semi-group structure isomorphic to $\mathbb{N}$. (Received September 02, 2010)