In this paper the authors present an outline of the proofs of the following three results. The detailed proofs will appear in a forthcoming publication.

From the announcement:

“Theorem 1. Let $\mu$ be an ergodic invariant measure for a $C^{1+\theta}$ action $\alpha$ of $\mathbb{Z}^k$, $k \geq 2$, with $\theta > 0$, on a $(k+1)$-dimensional manifold, or for a locally free $C^{1+\theta}$ action $\alpha$ of $\mathbb{R}^k$, $k \geq 2$, also with $\theta > 0$, on a $(2k+1)$-dimensional manifold. Suppose that the Lyapunov exponents of $\mu$ are in general position and that at least one element in $\mathbb{Z}^k$ has positive entropy with respect to $\mu$. Then $\mu$ is absolutely continuous.

Let $\mathcal{M}$ be the set of ergodic, $\alpha$-invariant measures that project to Lebesgue measure $\lambda$ by the semiconjugacy: $h_*\nu = \lambda$.

“Theorem 2. For any action $\alpha$ of $\mathbb{Z}^j+l$, $j+l \geq 2$, on $\mathbb{T}^{j+2l+1}$ by $C^{1+\theta}$ diffeomorphisms, $\theta > 0$, with maximal homotopy data, the set $\mathcal{M}$ consists of a single absolutely continuous measure.

“Theorem 3. For any action $\alpha$ of $\mathbb{Z}^k$ on $\mathbb{T}^{k+1}$ with Cartan homotopy data, any Lyapunov Hölder (resp. Lyapunov smooth) cocycle is cohomologous to a constant cocycle via a Lyapunov Hölder (resp. Lyapunov smooth) transfer function.”

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References

7. B. Kalinin, A. Katok and F. Rodriguez Hertz, Nonuniform measure rigidity,


Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.

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