A C^1 Anosov diffeomorphism with a horseshoe that attracts almost any point

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This is joint work with C. Bonatti, S. Minkov, and I. Shilin.

Using Bowen's construction of a horseshoe with positive Lebesgue measure [1], we construct an example of a C^1 Anosov diffeomorphism of the 2-torus that admits a physical measure ν such that

- the basin of ν has full Lebesgue measure,
- ν is supported on a horseshoe $\mathcal{H}$ with zero Lebesgue measure.

The horseshoe $\mathcal{H}$ is *semithick*, i.e. it is a product of a Cantor set with positive measure in the unstable direction and a Cantor set with zero measure in the stable direction.

References

1. *Bowen R.* A horseshoe with positive measure // Invent. Math. 1975. V. 29, N 3. P. 203–204.