Surface diffeomorphisms and their chaotic dynamics

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The ergodic theory of differentiable dynamics is deeply understood under a uniformly hyperbolic assumption [1]. Since the end of the 90's, huge progress has been obtained in order to cover larger classes of non-uniformly hyperbolic systems. During this lecture, I will discuss an alternative approach, which we recently introduced [2] with J. Buzzi and O. Sarig and which allows to describe every smooth surface diffeomorphism with positive topological entropy. These systems admit finitely many ergodic measures of maximal entropy satisfying nice statistical properties, and behave as countable Markov shifts with a spectral gap.

References

[1] R. Bowen. Equilibrium states and the ergodic theory of Anosov diffeomorphisms. *Lecture Notes in Mathematics* **470**, Springer-Verlag, 1975.

[2] J. Buzzi, S. Crovisier, O. Sarig. Dynamiques d'entropie non nulle sur les surfaces. *Lettre de l'INSMI* (décembre 2023). https://www.insmi.cnrs.fr/fr/cnrsinfo/dynamiques-dentropie-non-nulle-sur-les-surfaces