Tilings and Anosov Diffeomorphisms

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A. Pinto and D. Sullivan [4] proved a one-to-one correspondence between: (i) $C^{1+}$ conjugacy classes of expanding circle maps; (ii) solenoid functions and (iii) Pinto-Sullivan’s dyadic tilings on the real line.

A. Pinto [1,3] introduced the notion of \textit{golden tilings} and proved a one-to-one correspondence between (i) smooth conjugacy classes of Anosov diffeomorphisms, with an invariant measure absolutely continuous with respect to the Lebesgue measure, that are topologically conjugate to the linear automorphism $G(x, y) = (x + y, x)$, (ii) affine classes of golden tilings and (iii) solenoid functions.

Here we extend this last result and we exhibit a natural one-to-one correspondence between (i) smooth conjugacy classes of Anosov diffeomorphisms, with an invariant measure absolutely continuous with respect to the Lebesgue measure, that are topologically conjugate to the linear automorphism $G(x, y) = (ax + y, ax)$, where $a \in \mathbb{N}$, (ii) affine classes of tilings in the real line and (iii) solenoid functions.

The solenoid functions give a parametrization of the infinite dimensional space consisting of the mathematical objects described in the above equivalences.

References and Literature for Further Reading


