A GENERALIZED LIVŠIC–SINAI THEOREM FOR ENDOMORPHISMS

F. MICENA

Abstract. The classical theorem of Livšic and Sinai states that a transitive C^2 Anosov diffeomorphism admits an invariant volume form if and only if its Jacobian along every periodic orbit equals one. It was recently observed that the periodic Jacobian condition alone already implies transitivity, rendering the transitivity assumption unnecessary.

In this work, we extend this rigidity phenomenon to the non-invertible setting. We prove that if a C^2 Anosov endomorphism satisfies a natural analogue of the periodic Jacobian condition, then it is transitive and preserves a C^1 volume form. A key ingredient in the proof is a C^1 version of the Livšic cohomological theorem for hyperbolic endomorphisms.

It is a work in collaboration with José Santana Campos Costa.

IMC-UNIFEI Itajubá-MG, Brazil.
Email address: fpmicena82@unifei.edu.br

Date: June 9, 2026.