

TOPOLOGICAL PRESSURE FOR DISCONTINUOUS SEMIFLOWS AND A VARIATIONAL PRINCIPLE FOR IMPULSIVE DYNAMICAL SYSTEMS

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ABSTRACT. We introduce four, a priori different, concepts of topological pressure for possibly discontinuous semiflows acting on a compact metric space and observe that they all agree with the classical one when restricted to the continuous setting. Moreover, for a class of *impulsive semiflows*, which appear to be examples of discontinuous systems, we prove a variational principle. As a consequence, we conclude that for this class of systems the four notions of pressure coincide and, moreover, they also coincide with a concept of the topological pressure introduced in [3].

1. Introduction

The general aim of Ergodic Theory is to understand the stochastic behavior of deterministic systems and this is done by studying invariant measures. Since, in general, a dynamical system may have plenty of invariant measures, a fundamental question that arises is the following: which invariant measure should we choose to analyze the system?

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