

Dynamical Cohomology: Examples and Recent Developments

Lucas H. Backes

IMPA

Resumo

Let G be a topological group and M a topological space. A G -valued cocycle over a homeomorphism $f : M \rightarrow M$ is a continuous map $\alpha : \mathbb{Z} \times M \rightarrow G$ satisfying

$$\alpha(m+n, x) = \alpha(m, f^n(x))\alpha(n, x), \quad \forall m, n \in \mathbb{Z}, \forall x \in M.$$

Two cocycles α and β over f are said to be *cohomologous* whenever there exists a continuous map $P : M \rightarrow G$, usually called *transfer map*, such that

$$\alpha(n, x) = P(f^n(x))\beta(n, x)P(x)^{-1}, \quad \forall n \in \mathbb{Z}, \forall x \in M.$$

The goal of this talk is twofold: to present some classical examples where a given question can be reduced to the problem of determine whether certain cocycles are cohomologous and to present some recent results describing necessary and sufficient conditions for two cocycles to be cohomologous.