

LIB60BER

Characteristic varieties and homological finiteness properties

Alex Suciu, Northeastern University

ABSTRACT

The characteristic varieties of a space are the support loci for homology with coefficients in rank one local systems. Much of the original motivation for the study of these varieties (present in the pioneering work of Anatoly Libgober on the subject) comes from the very precise information they give about the homology of finite abelian covers of the given space.

In this talk, I will explain how the characteristic varieties also hold information about the homological finiteness properties of free abelian covers. This information leads to computable upper bounds for the Bieri-Neumann-Strebel-Renz invariants of the space, and its fundamental group. Under suitable hypothesis, these bounds can be expressed in terms of even simpler data, namely, the resonance varieties associated to the cohomology ring.

This is joint work with Stefan Papadima.