

Amenable dynamical systems. Examples and applications

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Abstract

It has long been known that there are strong interactions between operator algebras, dynamics and geometry. In this talk, the emphasis will be placed on the notion of amenability for dynamical systems (and more generally for groupoids) and its role in some recent developments, mainly the exactness property for discrete groups and the Novikov conjecture.

We shall begin by describing the main features of amenability, both in the setting of measured and topological group actions. The classical notion of amenable group is a particular case.

Then we shall describe several examples, including boundary actions of hyperbolic groups and lattices of semi-simple Lie groups. The groups which, as in the previous examples, act amenably on compact spaces are called amenable at infinity. Their reduced C^* -algebras are exact, and for them the Novikov Conjecture is true. If we have enough time, we shall sketch Higson's proof of this result, which appeals to Tu's theorem stating that amenable locally compact groupoids satisfy the Baum-Connes conjecture. We shall end with some outstanding problems.