

Entropy of endofunctors

Fabian Haiden

Abstract: I will report on joint work with G. Dimitrov, L. Katzarkov, and M. Kontsevich (arXiv:1307.8418) in which dynamical entropy is defined for endofunctors of triangulated categories. This notion should be seen as analogous to topological entropy. Indeed, the two can be compared for instance in the case of pseudo-Anosov maps on surfaces, or automorphisms of complex algebraic varieties, where they are found to be equal. Some general results are obtained in the case of smooth and compact categories. If time permits, I will mention various open questions as well.

Pre-talk (15:00–16:00): “Groups of derived autoequivalences”

Abstract: Triangulated categories developed initially as a tool in homological algebra with applications in the study of coherent sheaves, Lagrangian submanifolds, and representations of algebras. Motivated to great extent by Kontsevich’s Homological Mirror Symmetry conjecture, triangulated categories (and their operadic enhancements) came to be viewed as an approach to “formal non-commutative geometry”, worthy of study in their own right. Relatively little is known about their groups of symmetries in general. One of the most important discoveries is an analogue of the Dehn-twist in symplectic topology, that certain sphere-like objects in a triangulated category give rise to automorphisms of that category. This talk will be introductory with basic examples to illustrate the abstract theory.