

1107-37-306

**Anatole Katok\*** ([katok\\_a@math.psu.edu](mailto:katok_a@math.psu.edu)), Department of Mathematics, Pennsylvania State University, University Park, PA 16802. *Non-uniform Measure Rigidity*.

The original measure rigidity program concerns with the description of all invariant measures for various classes of algebraic (homogeneous and affine) actions on locally symmetric spaces. While this was completely successful in the parabolic (unipotent) case, virtually all progress up-to-date in the more subtle normally hyperbolic and partially hyperbolic cases relies on some sort of positive entropy assumption. The most general results in that direction are due to Einsiedler and Lindenstrauss.

Two new directions have developed during the recent years. They use ideas developed in the measure rigidity in combination with smooth ergodic theory (aka Pesin theory) to study general smooth actions of several classes of groups from the point of view of ergodic theory, geometry, and topology. Most attention was paid to actions of higher rank abelian groups. I will discuss results in that direction joint with Federico Rodriguez Hertz obtained during the last few years as well as remaining open problems. Related work on rigidity of entropy-type invariants will be discussed in the talk by Svetlana Katok. (Received January 18, 2015)