

The Anosov-Katok method: educational remarks, history and new developments

Roland Gunesch

PH Vorarlberg University of Education, Austria
roland.gunesch@ph-vorarlberg.ac.at

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One of the main tools in Smooth Ergodic Theory is the method of constructing C^∞ -diffeomorphisms with specified desired properties by constructing a sequence of periodic maps. This method allows to construct specific useful examples, which is very important, since these are fundamentally the main content in Smooth Ergodic Theory. The method was invented by D. Anosov and A. B. Katok and is currently seeing a revival. This talk explains the method and its usefulness, gives an overview over the historical developments of its application, and presents some entirely new results, including novel constructions of weakly mixing diffeomorphisms with desired extra properties.