Modern Theory of Dynamical Systems
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A Tribute to Dmitry Victorovich Anosov

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Preface

This volume of the “Contemporary mathematics” series is dedicated to the achievements and memory of Dmitry Viktorovich Anosov (1936–2014), one of the founders of the modern dynamical systems theory. While Anosov lived and worked all his life in the Soviet Union and Russia, his work beginning from 1960s, had great international resonance. Anosov’s name is forever connected with hyperbolic dynamics, the area where he made his most important contributions. S. Smale named one of the central objects of this area, originally introduced by Anosov as U-systems, Anosov systems, and this name quickly came into the universal use. The features captured by that notion are so striking that various derivative and related objects were given names that still refer to Anosov. Another important contribution of Anosov is the discovery of a very flexible and rather paradoxical AbC (Approximation by Conjugation) method of constructing smooth dynamical systems with interesting, often unexpected, properties. In the literature this method, that is still widely used, is often called AK (Anosov-Katok) method.

The composition of this volume reflects both the influence of Anosov’s contributions and his personal legacy. Two leading articles contain personal recollections; the first of them also includes an informal partial survey of Anosov’s work. The remaining fifteen papers are primarily original research papers; several among them are fully or partially surveys dedicated primarily to various aspects of Anosov’s work. Thematically hyperbolic dynamics in a broad sense appears as the subject in nine of those papers. Four of those are fairly directly connected with the themes and contents of Anosov’s work. Two more papers include new applications of the AbC method.

The authors of this volume can be approximately divided into three groups: (i) long-term friends, colleagues, students and collaborators of Anosov from the “Russian school”, some of them still in Russia, others now permanently living in the United States; (ii) senior Western mathematicians directly influenced by Anosov’s work, and (iii) mathematicians of younger generation who did not know Anosov personally but have been influenced by his work or by the developments directly based on that work.

The editors hope that this volume will serve as a fitting memorial to one of the outstanding mathematicians of the second half of the twentieth century.

Anatole Katok
Yakov Pesin
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This volume is a tribute to one of the founders of modern theory of dynamical systems, the late Dmitry Victorovich Anosov.

It contains both original papers and surveys, written by some distinguished experts in dynamics, which are related to important themes of Anosov’s work, as well as broadly interpreted further crucial developments in the theory of dynamical systems that followed Anosov’s original work.

Also included is an article by A. Katok that presents Anosov’s scientific biography and a picture of the early development of hyperbolicity theory in its various incarnations, complete and partial, uniform and nonuniform.