

**Pesin, Yakov**

**Lectures on partial hyperbolicity and stable ergodicity.** (English) Zbl 1098.37024

*Zurich Lectures in Advanced Mathematics*. Zürich: European Mathematical Society (EMS) (ISBN 3-03719-003-5/pbk). vi, 122 p. (2004).

Author's abstract on the cover of the book: "This book is an introduction to the modern theory of partial hyperbolicity with applications to stable ergodicity theory of smooth dynamical systems. It provides a systematic treatment of the theory and describes all the basic concepts and major results that have been obtained in the area since its creation around the early 1970s. It can be used as a textbook for a graduate student course and is also of interest to professional mathematicians working in the field of dynamical systems and their applications".

In the Introduction, some motivation from the theory of partial differential equations is shown at first, jointly with the brief explanation of the suitability of the notion of partial hyperbolicity. Then the scope of the book is presented. It consists of the following further nine chapters:

2. The Concept of Hyperbolicity; 3. The Mather Spectral Theory; 4. Stable and Unstable Foliations; 5. Central Foliations; 6. Intermediate Foliations; 7. Absolute Continuity; 8. Accessibility and Stable Accessibility; 9. The Pugh-Shub Ergodicity Theory; 10. Stable Ergodicity.

Although some results (especially those included for completeness of exposition) are presented without proofs, the text is rather self-contained. For the easier orientation, a subject index is also supplied.

Reviewer: [Jan Andres \(Olomouc\)](#)

**MSC:**

[37Dxx](#) Dynamical systems with hyperbolic behavior

[37-02](#) Research exposition (monographs, survey articles) pertaining to dynamical systems and ergodic theory

[37D30](#) Partially hyperbolic systems and dominated splittings

Cited in **78** Documents

**Keywords:**

[partial hyperbolicity](#); [stable ergodicity](#); [spectral theory](#); [foliations](#)

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