

Introduction to the Mathematical Theory of Control

By **Alberto Bressan and Benedetto Piccoli**

This book provides an introduction to the mathematical theory of nonlinear control systems. It contains many topics that are usually scattered among different texts, such as:

- Basic properties of control systems
- Controllability of linear and nonlinear systems
- Lie brackets and reachability
- Asymptotic stabilization
- Optimal control and the Pontryagin Maximum Principle
- Hamilton-Jacobi-Bellmann equations and viscosity solutions
- Optimal feedback synthesis

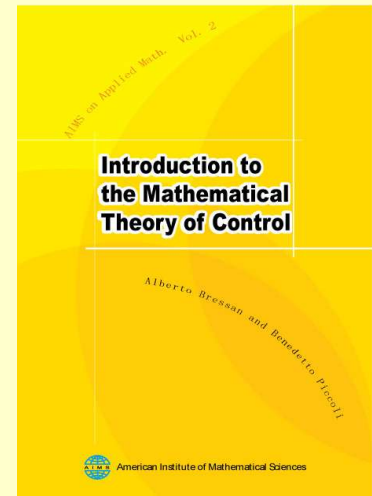
The book also presents some topics of current research, which were never before included in a textbook, including:

- Patchy feedbacks
- Impulsive control of mechanical systems

This volume will serve as an ideal textbook for graduate students. It is self-contained, with several appendices covering a wide mathematical background.

Students will be aided by its lucid exposition. More than 100 figures and 100 exercises have been inserted, helping the readers to understand the key geometric ideas and build their intuition.

For science or engineering students, this book provides a richly illustrated overview of the basic techniques and results in the theory of linear and nonlinear control. More mathematically oriented students can use this text as a useful introduction, before tackling more advanced, research oriented monographs.



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328 pages

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