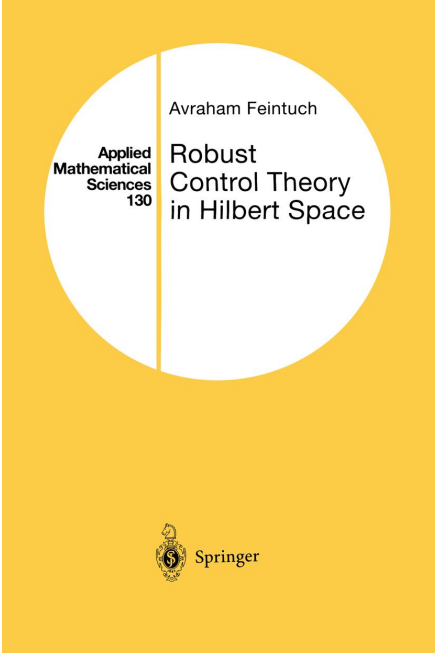

Springer

1st edition

1998, XV, 228 p.

Printed book
Hardcover

Printed book
Hardcover
ISBN 978-0-387-98291-5
$ 149,99
Available

Discount group
Professional Books (2)

Product category
Monograph

Series
Applied Mathematical Sciences

Other renditions
Softcover
ISBN 978-1-4612-6829-1

Mathematics : Calculus of Variations and Optimal Control; Optimization

Feintuch, Avraham

Robust Control Theory in Hilbert Space

- **- The necessary operator theory is developed from first principles - The book is as self-contained as possible - All competition is aimed at the engineering community; this book is aimed at mathematicians interested in the potential applications and extensions of their work**

Motivation The latest texts on linear systems for engineering students have begun incorporating chapters on robust control using the state space approach to HOC control for linear finite dimensional time-invariant systems. While the pedagogical and computational advantages of this approach are not to be underestimated, there are, in my opinion, some disadvantages. Among these disadvantages is the narrow viewpoint that arises from the amputation of the finite dimensional time-invariant case from the much more general theory that had been developed using frequency domain methods. The frequency domain, which occupied center stage for most of the develop- ments of HOC control theory, presents a natural context for analysis and controller synthesis for time-invariant linear systems, whether of finite or infinite dimen- sions. A fundamental role was played in this theory by operator theoretic methods, especially the theory of Toeplitz and skew-Toeplitz operators. The recent lecture notes of Foias, Ozbay, and Tannenbaum [3] display the power of this theory by constructing robust controllers for the problem of a flexible beam. Although controller synthesis depends heavily on the special computational ad- vantages of time-invariant systems and the relationship between HOC optimization and classical interpolation methods, it turns out that the analysis is possible without the assumption that the systems are time-invariant.

Order online at springer.com/booksellers
Springer Nature Customer Service Center LLC
233 Spring Street
New York, NY 10013
USA
T: +1-800-SPRINGER NATURE
(777-4643) or 212-460-1500
customerservice@springernature.com

Prices and other details are subject to change without notice. All errors and omissions excepted. Americas: Tax will be added where applicable. Canadian residents please add PST, QST or GST. Please add $5.00 for shipping one book and $ 1.00 for each additional book. Outside the US and Canada add $ 10.00 for first book, $5.00 for each additional book. If an order cannot be fulfilled within 90 days, payment will be refunded upon request. Prices are payable in US currency or its equivalent.

ISBN 978-0-387-98291-5 / BIC: PBKQ / SPRINGER NATURE: SCM26016