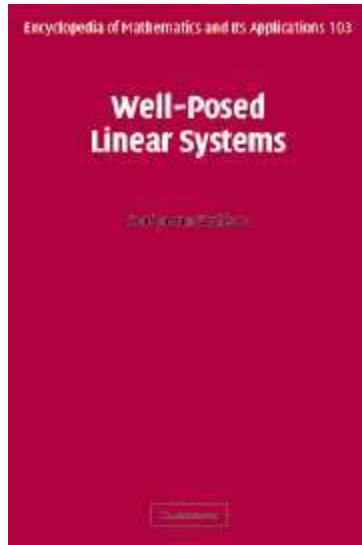


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Well-Posed Linear Systems

Series: [Encyclopedia of Mathematics and its Applications](#) (No. 103)Olof Staffans
Åbo Akademi University, Finland**Hardback**

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Many infinite-dimensional linear systems can be modelled in a Hilbert space setting. Others, such as those dealing with heat transfer or population dynamics, need to be set more generally in Banach spaces. This is the first book dealing with well-posed infinite-dimensional linear systems with an input, a state, and an output in a Hilbert or Banach space setting. It is also the first to describe the class of non-well-posed systems induced by system nodes. The author shows how standard finite-dimensional results from systems theory can be extended to these more general classes of systems, and complements them with new results which have no finite-dimensional counterpart. Much of the material presented is original, and many results have never appeared in book form before. A comprehensive bibliography rounds off this work which will be

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indispensable to all working in systems theory, operator theory, delay equations and partial differential equations.




Contents

1. Introduction and overview; 2. Basic properties of well-posed linear systems; 3. Strongly continuous semigroups; 4. The generations of a well-posed linear system; 5. Compatible and regular systems; 6. Anti-causal, dual and inverted systems; 7. Feedback; 8. Stabilization and detection; 9. Realizations; 10. Admissibility; 11. Passive and conservative scattering systems; 12. Discrete time systems; 13. Appendix.

Review

"The book is well and carefully written. The material is self-contained and all the proofs are provided within the text. ...presents a ... complete treatment of well-posed linear control systems."

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