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Nota di contenuto	Introduction -- Preliminary Considerations and Examples -- Operators and Semigroups for Systems with Boundary Inputs -- The Heat Equation with Memory and its Controllability -- The Wave Equation with Memory and its Controllability -- The Stability of the Wave Equation with Persistent Memory -- Dynamical Algorithms for Identification Problems -- Final Miscellaneous Problems.
Sommario/riassunto	This text addresses systems with persistent memory that are common mathematical models used in the study of viscoelasticity and thermodynamics with memory. In particular, this class of systems is used to model non-Fickian diffusion in the presence of complex molecular structures. Hence, it has wide applications in biology. The book focuses on the properties and controllability of the archetypal heat and wave equations with memory and introduces the dynamic approach to identification problems and the basic techniques used in the study of stability. The book presents several approaches currently used to study systems with persistent memory: Volterra equation in Hilbert spaces, Laplace transform techniques and semigroup methods.

The text is intended for a diverse audience in applied mathematics and engineering and it can be used in PhD courses. Readers are recommended to have a background in the elements of functional analysis. Topics of functional analysis which younger readers may need to familiarize with are presented in the book.