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	Titolo	Linear Delay-Differential Systems with Commensurate Delays: An Algebraic Approach [[electronic resource] /] / by Heide Gluesing-Luerssen
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	ISBN	3-540-45543-4
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	Descrizione fisica	1 online resource (X, 178 p.)
	Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 1770
	Disciplina	515.35
	Soggetti	Calculus of variations
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		Differential equations
		Calculus of Variations and Optimal Control; Optimization
		Ordinary Differential Equations
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	Nota di bibliografia	Includes bibliographical references (pages [169]-174) and index.
	Nota di contenuto	Introduction -- The Algebraic Framework -- The Algebraic Structure of H_0. Divisibility Properties. Matrices over H_0. Systems over Rings: A Brief Survery. The Nonfinitely Generated Ideals of H_0. The Ring H as a Convolution Algebra. Computing the Bezout Identity -- Behaviors of Delay-Differential Systems. The Lattice of Behaviors. Input/Output Systems. Transfer Classes and Controllable Systems. Subbehaviors and Interconnections. Assigning the Characteristic Function. Biduals of Nonfinitely Generated Ideals -- First-Order Representations. Multi-Operator Systems. The Realization Procedure of Fuhrmann. First-Order Realizations. Some Minimality Issues.
	Sommario/riassunto	The book deals with linear time-invariant delay-differential equations with commensurated point delays in a control-theoretic context. The aim is to show that with a suitable algebraic setting a behavioral theory for dynamical systems described by such equations can be developed. The central object is an operator algebra which turns out to be an elementary divisor domain and thus provides the main tool for investigating the corresponding matrix equations. The book also

reports the results obtained so far for delay-differential systems with noncommensurate delays. Moreover, whenever possible it points out similarities and differences to the behavioral theory of multidimensional systems, which is based on a great deal of algebraic structure itself. The presentation is introductory and self-contained. It should also be accessible to readers with no background in delay-differential equations or behavioral systems theory. The text should interest researchers and graduate students.