1. Record Nr. UNINA9910299473703321

Autore	Kaczorek Tadeusz
Titolo	The Realization Problem for Positive and Fractional Systems / / by Tadeusz Kaczorek, Lukasz Sajewski
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2014
ISBN	3-319-04834-1
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (599 p.)
Collana	Studies in Systems, Decision and Control, , 2198-4182 ; ; 1
Disciplina	003.74015118
Soggetti	Automatic control System theory Control and Systems Theory Systems Theory, Control
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Realization problem of 1D standard linear systems -- Realization problem of 1D positive regular linear systems -- Realization problem of 1D positive regular linear systems with delays -- Positive stable realization problem for 1D regular linear systems -- Positive realization problem of 1D descriptor linear systems -- Positive realization problem for 1D regular fractional linear systems -- Positive realization problem for 1D descriptor fractional linear systems -- Positive realization problem for 2D continuous-discrete linear systems.
Sommario/riassunto	This book addresses the realization problem of positive and fractional continuous-time and discrete-time linear systems. Roughly speaking the essence of the realization problem can be stated as follows: Find the matrices of the state space equations of linear systems for given their transfer matrices. This first book on this topic shows how many well-known classical approaches have been extended to the new classes of positive and fractional linear systems. The modified Gilbert method for multi-input multi-output linear systems, the method for determination of realizations in the controller canonical forms and in observer canonical forms are presented. The realization problem for linear systems described by differential operators, the realization problem in the Weierstrass canonical forms and of the descriptor linear

systems for given Markov parameters are addressed. The book also presents a method for the determination of minimal realizations of descriptor linear systems and an extension for cone linear systems. This monographs summarizes recent original investigations of the authors in the new field of the positive and fractional linear systems.