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Titolo	Fractional Linear Systems and Electrical Circuits / / by Tadeusz Kaczorek, Krzysztof Rogowski
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Collana	Studies in Systems, Decision and Control, , 2198-4182 ; ; 13
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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	Fractional differential equations -- Positive fractional electrical circuits -- Descriptor linear electrical circuits and their properties -- Stability of positive standard linear electrical circuits -- Reachability, observability and reconstructability -- Standard and fractional linear circuits with feedbacks -- Minimum energy control of electrical circuits -- Fractional 2D systems described by the Roesser model -- Laplace transforms and Z-transforms -- Elementary operations on matrices -- Nilpotent matrices -- Drazin inverse matrix.
Sommario/riassunto	This monograph covers some selected problems of positive and fractional electrical circuits composed of resistors, coils, capacitors and voltage (current) sources. The book consists of 8 chapters, 4 appendices and a list of references. Chapter 1 is devoted to fractional standard and positive continuous-time and discrete-time linear systems without and with delays. In chapter 2 the standard and positive fractional electrical circuits are considered and the fractional electrical circuits in transient states are analyzed. Descriptor linear electrical circuits and their properties are investigated in chapter 3, while

chapter 4 is devoted to the stability of fractional standard and positive linear electrical circuits. The reachability, observability and reconstructability of fractional positive electrical circuits and their decoupling zeros are analyzed in chapter 5. The fractional linear electrical circuits with feedbacks are considered in chapter 6. In chapter 7 solutions of minimum energy control for standard and fractional systems with and without bounded inputs is presented. In chapter 8 the fractional continuous-time 2D linear systems described by the Roesser type models are investigated. .