Record Nr. UNINA9910817534403321 Hybrid systems with constraints // edited by Jamal Daafouz, Sophie **Titolo** Tarbouriech, Mario Sigalotti Pubbl/distr/stampa Hoboken, N.J.,: ISTE Ltd/John Wiley and Sons Inc., 2013 **ISBN** 1-118-63991-X 1-118-63985-5 1-118-63973-1 Edizione [1st ed.] Descrizione fisica 1 online resource (277 p.) Collana Automation-control and industrial engineering series Disciplina 621 Soggetti Hybrid systems Control theory 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 CONTENTS; Preface; Chapter 1. Positive Systems: Discretization with Positivity and Constraints; 1.1. Introduction and statement of the problem; 1.2. Discretization of switched positive systemsvia Pade transformations; 1.3. Discretization of positive switched systems with sparsity constraints; 1.4. Conclusions; 1.5. Bibliography; Chapter 2. Advanced Lyapunov Functions for Lur'e Systems; 2.1. Introduction; 2.2. Motivating example; 2.3. A new Lyapunov Lur'e-type function for discrete-timeLur'e systems; 2.4. Switched discrete-time Lur'e system with arbitraryswitching law 2.5. Switched discrete-time Lur'e system controlledby the switching law2.6. Conclusion; 2.7. Bibliography; Chapter 3. Stability of Switched DAEs; 3.1. Introduction; 3.2. Preliminaries; 3.3. Stability results; 3.4. Conclusion; 3.5. Acknowledgments; 3.6. Bibliography; Chapter 4. Stabilization of Persistently Excited Linear Systems; 4.1. Introduction; 4.2. Finite-dimensional systems; 4.3. Infinite-dimensional systems; 4.4. Further discussion and open problems; 4.5. Bibliography; Chapter 5. Hybrid Coordination of Flow Networks; 5.1. Introduction; 5.2. Flow network model and problem statement 5.3. Self-triggered gossiping control of flow networks 5.4. Practical load balancing; 5.5. Load balancing with delayed actuation and skewed clocks; 5.6. Asymptotical load balancing; 5.7. Conclusions; 5.8.

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Sommario/riassunto

Control theory is the main subject of this title, in particular analysis and control design for hybrid dynamic systems. The notion of hybrid systems offers a strong theoretical and unified framework to cope with the modeling, analysis and control design of systems where both continuous and discrete dynamics interact. The theory of hybrid systems has been the subject of intensive research over the last decade and a large number of diverse and challenging problems have been investigated. Nevertheless, many important mathematical problems remain open. This book is dedicated mainly to