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Nota di contenuto	Part I: Structure of Complex Dynamical Systems -- Chapter 1. Complex Systems and Control: The Paradigms of Structure Evolving Systems and System of Systems -- Chapter 2. Stability and the Kleinian View of Geometry -- Chapter 3. Strong Structural Controllability and Zero Forcing -- Part II: Control and Observation of Complex Dynamical Systems -- Chapter 4. Output Regulation of Hybrid Linear Systems: Solvability Conditions and Structural Implications -- Chapter 5. A Stratied Geometric Approach to the Disturbance Decoupling Problem with Stability for Switched Systems over Digraphs -- Chapter 6. Unknown-Input Observers for Hybrid Dynamical Structures -- Chapter

7. Advances of Implicit Description Techniques in Modelling and Control of Switched Systems -- Part III: Applications of Complex Dynamical Systems -- Chapter 8. Huygens Synchronization over Distributed Media - Structure versus Complex Behavior.

Sommario/riassunto

Structural Methods in the Study of Complex Systems helps the reader respond to the challenge of mastering complexity in systems and control. The book details the fundamental control problems arising from complex dynamical systems and shows how they can be tackled effectively by means of methods developed from graph theory, differential algebra and geometric approaches. These “structural methods” produce abstractions that fit a wide variety of applications by taking advantage of their intrinsic focus on the essential characteristics of dynamical systems, their geometric perspective and visual representation, and their algebraic formalization and ability to generate algorithmic frameworks to complement the theoretical treatment. The original work and latest achievements of the contributors, expanding on material presented at a workshop organized to coincide with the 2018 European Control Conference will assist systems and control scientists interested in developing theoretical and computational tools to solve analysis and synthesis problems involving complex dynamical systems. The contributions provide a comprehensive picture of available results along with a stimulating view of possible directions for future investigations in the field. Emphasis is placed on methods with solid computational background and on specific engineering applications so that readers from both theoretical and practical backgrounds will find this collection of use.