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Nota di contenuto	Introduction -- Preliminaries of Sliding Mode Control and Graph Theory -- Discrete-time Sliding Mode Protocols for Leader-Following Consensus of Homogeneous Discrete Multi-Agent System with Fixed Graph Topology -- Discrete-time Sliding Mode Protocols for Leader-Following Consensus of Discrete Multi-Agent System with Switching Graph Topology -- Discrete-time Higher Order Sliding Mode Protocols for Leader-Following Consensus of Homogeneous Discrete Multi-Agent System -- Event-triggered Discrete-time Higher-order Sliding Mode Protocol for Leader-Following Consensus of Homogeneous DMAS -- Discrete-time Higher-Order Sliding Mode Protocol for Consensus of Leader-Following Heterogeneous Discrete Multi-Agent System -- Concluding remarks and future scope.
Sommario/riassunto	This book presents few novel Discrete-time Sliding Mode (DSM)

protocols for leader-following consensus of Discrete Multi-Agent Systems (DMASs). The protocols intend to achieve the consensus in finite time steps and also tackle the corresponding uncertainties. Based on the communication graph topology of multi-agent systems, the protocols are divided into two groups, namely (i) Fixed graph topology and (ii) Switching graph topology. The coverage begins with the design of Discrete-time Sliding Mode (DSM) protocols using Gao's reaching law and power rate reaching law for the synchronization of linear DMASs by using the exchange of information between the agents and the leader to achieve a common goal. Then, in a subsequent chapter, analysis for no. of fixed-time steps required for the leader-following consensus is presented. The book also includes chapters on the design of Discrete-time Higher-order Sliding Mode (DHSM) protocols, Event-triggered DSM protocols for the leader-following consensus of DMASs. A chapter is also included on the design of DHSM protocols for leader-following consensus of heterogeneous DMASs. Special emphasis is given to the practical implementation of each proposed DSM protocol for achieving leader-following consensus of helicopter systems, flexible joint robotic arms, and rigid joint robotic arms. This book offers a ready reference guide for graduate students and researchers working in the areas of control, automation, and communication engineering, and in particular the cooperative control of multi-agent systems. It will also benefit professional engineers working to design and implement robust controllers for power systems, autonomous vehicles, military surveillance, smartgrids/microgrids, vehicle traffic management, robotic teams, and aerial robots.