1. Record Nr. UNINA9910437769403321 Autore Xia Yuanging Titolo Compound Control Methodology for Flight Vehicles / / by Yuanqing Xia, Mengyin Fu Berlin, Heidelberg:,: Springer Berlin Heidelberg:,: Imprint: Springer, Pubbl/distr/stampa , 2013 **ISBN** 3-642-36841-7 Edizione [1st ed. 2013.] Descrizione fisica 1 online resource (XVIII, 260 p. 125 illus.) Collana Lecture Notes in Control and Information Sciences, , 0170-8643 ; ; 438 629.8 Disciplina Soggetti Control engineering Aerospace engineering Astronautics Control and Systems Theory Aerospace Technology and Astronautics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Bibliographic Level Mode of Issuance: Monograph Nota di contenuto Overview of Sliding Mode Control -- Overview of Active Disturbance Rejection Control -- Overview of Flight Vehicle Control -- The Descriptions of Flight Vehicle -- SMC for Missile Systems Based on Back-Stepping and ESO Techniques -- Adaptive SMC for Attitude Stabilization in Presence of Actuator Saturation -- Adaptive Nonsingular Terminal Sliding Mode Control for Rigid Spacecraft --Attitude Tracking of Rigid Spacecraft with Uncertainties and Disturbances -- SMC for Attitude Tracking of Rigid Spacecraft with Disturbances -- Missile Guidance Law Based on ESO Techniques --Missile Guidance Laws Based on SMC and FTC Techniques --Cooperative Attack of Multiple Missiles Based on Optimal Guidance Law. "Compound Control Methodology for Flight Vehicles" focuses on new Sommario/riassunto control methods for flight vehicles. In this monograph the concept of compound control is introduced. It is demonstrated that both Sliding Mode Control (SMC) and Active Disturbance Rejection Control (ADRC) have their own advantages and limitations, i.e., chattering of SMC and

the observability of extended state observer (ESO), respectively. It is

shown that compound control combines their advantages and improves the performance of the closed-loop systems. The book is self-contained, providing sufficient mathematical foundations for understanding the contents of each chapter. It will be of significant interest to scientists and engineers engaged in the field of flight vehicle control.