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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	State-Dependent Sampling for Online Control -- Design of First Order Controllers for Unstable Infinite Dimensional Plants -- Anti-Windup Conditioning for Actuator Saturation in Internal Model Control with Delays -- Stabilization of Some Fractional Neutral Delay Systems which Possibly Possess an Infinite Number of Unstable Poles -- Controller Design for a Class of Delayed and Constrained Systems: Application to Supply Chains -- Delay Effects in Visual Tracking Problems for an Optronic Sighting System -- Tuning an H-Infinity Controller with a Given Order and a Structure for Interconnected Systems with Delays -- Delay-Independent Stability via reset loops -- Low Complexity Invariant Sets for Time-Delay Systems: a Set Factorization Approach -- Delays and Propagation: Control Liapunov Functionals and Computational Issues -- Integral Inequality for Time-Varying Delay Systems and its Application to Output-Feedback Control -- Control-Oriented Input-Delay Model of the Distributed Temperature of a SI Engine Exhaust Catalyst -- Suppressing Stick-slip Oscillations in Oilwell Drillstrings -- Flatness-Based Control for a Non-Linear Spatially Distributed Model of

a Drilling System -- Smith Predictor-based Control with Distance Feedback for Haptic Systems under Distributed Time-Delays.

Sommario/riassunto

This volume in the newly established series Advances in Delays and Dynamics (ADD@S) provides a collection of recent results on the design and analysis of Low Complexity Controllers for Time Delay Systems. A widely used indirect method to obtain low order controllers for time delay systems is to design a controller for the reduced order model of the plant. In the dual indirect approach, an infinite dimensional controller is designed first for the original plant model; then, the controller is approximated by keeping track of the degradation in performance and stability robustness measures. The present volume includes new techniques used at different stages of the indirect approach. It also includes new direct design methods for fixed structure and low order controllers. On the other hand, what is meant by low complexity controller is not necessarily low order controller. For example, Smith predictor or similar type of controllers include a copy of the plant internally in the controller, so they are technically infinite dimensional. However, they have very nice numerical properties from the point of reliable implementation. Therefore, such predictor-based controllers are considered as low complexity. This book includes new predictor-based design techniques, with several application examples.