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| Autore | Padula Fabrizio |
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| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | Introduction to Fractional Calculus -- Fractional Systems for Control -- Fractional Proportional-Integral-Derivative Controllers -- FOPID Controller Additional Functionalities.- H-infinity Control of Fractional Systems -- H-infinity Optimization-based FOPID Design -- Control Design Based on Input-Output Inversion. |
| Sommario/riassunto | This monograph presents design methodologies for (robust) fractional control systems. It shows the reader how to take advantage of the superior flexibility of fractional control systems compared with integer-order systems in achieving more challenging control requirements. There is a high degree of current interest in fractional systems and fractional control arising from both academia and industry and readers from both milieux are catered to in the text. Different design approaches having in common a trade-off between robustness and performance of the control system are considered explicitly. The text generalizes methodologies, techniques and theoretical results that have |

been successfully applied in classical (integer) control to the fractional case. The first part of Advances in Robust Fractional Control is the more industrially-oriented. It focuses on the design of fractional controllers for integer processes. In particular, it considers fractional-order proportional-integral-derivative controllers, because integer-order PID regulators are, undoubtedly, the controllers most frequently adopted in industry. The second part of the book deals with a more general approach to fractional control systems, extending techniques (such as H-infinity optimal control and optimal inputoutput inversion based control) originally devised for classical integer-order control. Advances in Robust Fractional Control will be a useful reference for the large number of academic researchers in fractional control, for their industrial counterparts and for graduate students who want to learn more about this subject.