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Titolo	Algorithms of Estimation for Nonlinear Systems : A Differential and Algebraic Viewpoint / / by Rafael Martínez-Guerra, Christopher Diego Cruz-Ancona
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Descrizione fisica	1 online resource (XX, 197 p. 58 illus., 10 illus. in color.)
Collana	Understanding Complex Systems, , 1860-0832
Disciplina	530.15
Soggetti	Statistical physics Vibration Dynamical systems Dynamics Ergodic theory Applications of Nonlinear Dynamics and Chaos Theory Vibration, Dynamical Systems, Control Dynamical Systems and Ergodic Theory Statistical Physics and Dynamical Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Preface -- Analysis of input-affine nonlinear processes -- Basic Definitions of Differential Algebras -- Algebraic Observability Condition for Nonlinear systems and External behaviour -- Generalized Observability Canonical Forms -- Observer Synthesis -- Tracking and Stabilization Problems -- Parametric and State Estimation -- Observer synthesis for a more general class of Nonlinear Systems -- A Separation Principle for Nonlinear Systems -- Some uncommon observers with interesting applications -- Appendix A Singularity Treatment -- Appendix B Some properties for Nonlinear Systems.
Sommario/riassunto	This book acquaints readers with recent developments in dynamical systems theory and its applications, with a strong focus on the control and estimation of nonlinear systems. Several algorithms are proposed and worked out for a set of model systems, in particular so-called

input-affine or bilinear systems, which can serve to approximate a wide class of nonlinear control systems. These can either take the form of state space models or be represented by an input-output equation. The approach taken here further highlights the role of modern mathematical and conceptual tools, including differential algebraic theory, observer design for nonlinear systems and generalized canonical forms.
