

1. Record Nr.	UNINA9910965535003321
Autore	Gauthier Jean-Paul
Titolo	Deterministic observation theory and applications / / Jean-Paul Gauthier, Ivan Kupka
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2001
ISBN	1-107-12389-5 0-521-18386-3 0-511-17475-6 0-511-15477-1 1-280-43347-7 0-511-54664-5 9786610433476 0-511-30238-X 0-511-04405-4
Edizione	[1st ed.]
Descrizione fisica	1 online resource (x, 226 pages) : digital, PDF file(s)
Disciplina	003
Soggetti	Observers (Control theory) Missing observations (Statistics)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references (p. 217-220) and index.
Nota di contenuto	Systems under Consideration -- What Is Observability? -- The New Observability Theory Versus the Old Ones -- Observability and Observers -- Observability Concepts -- Infinitesimal and Uniform Infinitesimal Observability -- The Canonical Flag of Distributions -- The Phase-Variable Representation -- Differential Observability and Strong Differential Observability -- The Trivial Foliation -- Appendix: Weak Controllability -- The Case $d[y] \leq d[u]$ -- Relation Between Observability and Infinitesimal Observability -- Normal Form for a Uniform Canonical Flag -- Characterization of Uniform Infinitesimal Observability -- Complements -- Proof of Theorem 3.2 -- The Case $d[y] \leq d[u]$ -- Definitions and Notations -- Statement of Our Differential Observability Results -- Proof of the Observability Theorems -- Equivalence between

Observability and Observability for Smooth Inputs -- The Approximation Theorem -- Complements -- Singular State-Output Mappings -- Assumptions and Definitions -- The Ascending Chain Property -- The Key Lemma -- The ACP(N) in the Controlled Case -- Globalization -- The Controllable Case -- Observers: The High-Gain Construction -- Definition of Observer Systems and Comments -- The High-Gain Construction -- Dynamic Output Stabilization and Applications -- Dynamic Output Stabilization -- The Case of a Uniform Canonical Flag -- The General Case of a Phase-Variable Representation -- Complements -- Applications -- Binary Distillation Columns -- Polymerization Reactors.

Sommario/riassunto

This 2001 book presents a general theory as well as a constructive methodology to solve 'observation problems', that is, reconstructing the full information about a dynamical process on the basis of partial observed data. A general methodology to control processes on the basis of the observations is also developed. Illustrative but also practical applications in the chemical and petroleum industries are shown. This book is intended for use by scientists in the areas of automatic control, mathematics, chemical engineering and physics.
