

1. Record Nr.	UNINA9910300150003321
Autore	Libre Jaume
Titolo	Introduction to the Qualitative Theory of Differential Systems : Planar, Symmetric and Continuous Piecewise Linear Systems / / by Jaume Libre, Antonio E. Teruel
Pubbl/distr/stampa	Basel : , : Springer Basel : , : Imprint : Springer, , 2014
ISBN	3-0348-0657-4
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (XIII, 289 p. 84 illus., 1 illus. in color.)
Collana	Birkhäuser Advanced Texts Basler Lehrbücher, , 2296-4894
Disciplina	515.352
Soggetti	Differential equations System theory Control theory Differential Equations Systems Theory, Control
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references (pages 283-286) and index.
Nota di contenuto	Preface -- 1 Introduction and statement of the main results -- 2 Basic elements of the qualitative theory of ODEs -- 3 Fundamental systems -- 4 Return maps -- 5 Phase portraits -- Index -- Bibliography. .
Sommario/riassunto	The book deals with continuous piecewise linear differential systems in the plane with three pieces separated by a pair of parallel straight lines. These differential systems are symmetric with respect to the origin of coordinates. This class of systems, driven by concrete applications, is of interest in engineering, in particular in control theory and the design of electric circuits. By studying these particular differential systems, we will introduce the basic tools of the qualitative theory of ordinary differential equations, which allow us to describe the global dynamics of these systems including the dynamics at infinity. The behavior of their solutions, their parametric stability or instability and their bifurcations are described. The book is highly suitable for a first course in the qualitative theory of differential equations or dynamical systems, particularly for engineers, mathematicians, and physicists.