1. Record Nr. UNINA9910300260503321

Autore	Lafontaine Jacques
Titolo	An Introduction to Differential Manifolds / / by Jacques Lafontaine
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-20735-0
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (XIX, 395 p. 49 illus.)
Disciplina	516.36
Soggetti	Geometry, Differential Differential Geometry
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 and index.
Nota di contenuto	Differential Calculus -- Manifolds: The Basics -- From Local to Global -- Lie Groups -- Differential Forms -- Integration and Applications -- Cohomology and Degree Theory -- Euler-Poincaré and Gauss-Bonnet.
Sommario/riassunto	This book is an introduction to differential manifolds. It gives solid preliminaries for more advanced topics: Riemannian manifolds, differential topology, Lie theory. It presupposes little background: the reader is only expected to master basic differential calculus, and a little point-set topology. The book covers the main topics of differential geometry: manifolds, tangent space, vector fields, differential forms, Lie groups, and a few more sophisticated topics such as de Rham cohomology, degree theory and the Gauss-Bonnet theorem for surfaces. Its ambition is to give solid foundations. In particular, the introduction of “abstract” notions such as manifolds or differential forms is motivated via questions and examples from mathematics or theoretical physics. More than 150 exercises, some of them easy and classical, some others more sophisticated, will help the beginner as well as the more expert reader. Solutions are provided for most of them. The book should be of interest to various readers: undergraduate and graduate students for a first contact to differential manifolds, mathematicians from other fields and physicists who wish to acquire some feeling about this beautiful theory. The original French text Introduction aux variétés différentielles has been a best-seller in its category in France for many years. Jacques Lafontaine was successively

assistant Professor at Paris Diderot University and Professor at the University of Montpellier, where he is presently emeritus. His main research interests are Riemannian and pseudo-Riemannian geometry, including some aspects of mathematical relativity. Besides his personal research articles, he was involved in several textbooks and research monographs.