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Collana	Compact Textbooks in Mathematics, , 2296-455X
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Soggetti	Global analysis (Mathematics) Manifolds (Mathematics) Topological groups Lie groups Geometry, Differential Global Analysis and Analysis on Manifolds Topological Groups and Lie Groups Differential Geometry
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface -- Smooth manifolds -- Tensor fields and differential forms -- Lie groups -- Integration -- Appendix A: Covering manifolds -- Appendix B: Hodge Theory -- Bibliography -- Index.
Sommario/riassunto	This concise and practical textbook presents the essence of the theory on smooth manifolds. A key concept in mathematics, smooth manifolds are ubiquitous: They appear as Riemannian manifolds in differential geometry; as space-times in general relativity; as phase spaces and energy levels in mechanics; as domains of definition of ODEs in dynamical systems; as Lie groups in algebra and geometry; and in many other areas. The book first presents the language of smooth manifolds, culminating with the Frobenius theorem, before discussing the language of tensors (which includes a presentation of the exterior derivative of differential forms). It then covers Lie groups and Lie algebras, briefly addressing homogeneous manifolds. Integration on manifolds, explanations of Stokes' theorem and de Rham cohomology, and rudiments of differential topology complete this work. It also

includes exercises throughout the text to help readers grasp the theory, as well as more advanced problems for challenge-oriented minds at the end of each chapter. Conceived for a one-semester course on Differentiable Manifolds and Lie Groups, which is offered by many graduate programs worldwide, it is a valuable resource for students and lecturers alike. .