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Autore	Eschrig H (Helmut)
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Descrizione fisica	1 online resource (XII, 390 p. 60 illus.)
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Topology -- Manifolds -- Tensor Fields -- Integration, Homology and Cohomology -- Lie Groups -- Bundles and Connections -- Parallelism, Holonomy, Homotopy and (Co)homology -- Riemannian Geometry -- Compendium.
Sommario/riassunto	A concise but self-contained introduction of the central concepts of modern topology and differential geometry on a mathematical level is given specifically with applications in physics in mind. All basic concepts are systematically provided including sketches of the proofs of most statements. Smooth finite-dimensional manifolds, tensor and exterior calculus operating on them, homotopy, (co)homology theory including Morse theory of critical points, as well as the theory of fiber bundles and Riemannian geometry, are treated. Examples from physics comprise topological charges, the topology of periodic boundary conditions for solids, gauge fields, geometric phases in quantum physics and gravitation.