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Titolo	Introduction to Global Variational Geometry // by Demeter Krupka
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ISBN	94-6239-073-8
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (366 p.)
Collana	Atlantis Studies in Variational Geometry, , 2214-0719 ; ; 1
Disciplina	516.362
Soggetti	Global analysis (Mathematics) Manifolds (Mathematics) Geometry, Differential Mathematical optimization Calculus of variations Mathematical physics Gravitation Global Analysis and Analysis on Manifolds Differential Geometry Calculus of Variations and Optimization Theoretical, Mathematical and Computational Physics Classical and Quantum Gravity
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Jet prolongations of fibred manifolds -- Differential forms on jet prolongations of fibred manifolds -- Formal divergence equations -- Variational structures -- Invariant variational structures -- Examples: Natural Lagrange structures -- Elementary sheaf theory -- Variational sequences.
Sommario/riassunto	The book is devoted to recent research in the global variational theory on smooth manifolds. Its main objective is an extension of the classical variational calculus on Euclidean spaces to (topologically nontrivial) finite-dimensional smooth manifolds; to this purpose the methods of global analysis of differential forms are used. Emphasis is placed on the foundations of the theory of variational functionals on fibered manifolds - relevant geometric structures for variational principles in

geometry, physical field theory and higher-order fibered mechanics. The book chapters include: - foundations of jet bundles and analysis of differential forms and vector fields on jet bundles, - the theory of higher-order integral variational functionals for sections of a fibred space, the (global) first variational formula in infinitesimal and integral forms- extremal conditions and the discussion of Noether symmetries and generalizations,- the inverse problems of the calculus of variations of Helmholtz type- variational sequence theory and its consequences for the global inverse problem (cohomology conditions)- examples of variational functionals of mathematical physics. Complete formulations and proofs of all basic assertions are given, based on theorems of global analysis explained in the Appendix.

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