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Titolo	Topological and Statistical Methods for Complex Data : Tackling Large-Scale, High-Dimensional, and Multivariate Data Spaces / / edited by Janine Bennett, Fabien Vivodtzev, Valerio Pascucci
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ISBN	3-662-44900-5
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (297 p.)
Collana	Mathematics and Visualization, , 2197-666X
Disciplina	514
Soggetti	Topology Statistics Mathematics Algorithms Information visualization Manifolds (Mathematics) Statistical Theory and Methods Applications of Mathematics Data and Information Visualization Manifolds and Cell Complexes
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"With 120 Figures, 101 in color."
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	I. Large-scale data analysis: In-situ and distributed analysis -- II. Large-scale data analysis: Efficient representation of large-functions -- III. Multi-variate data analysis: Structural techniques -- IV. Multi-variate data analysis: Classification and visualization of vector fields -- V. High-dimensional data analysis: Exploration of high-dimensional models -- VI. High-dimensional data analysis: Analysis of large systems.
Sommario/riassunto	This book contains papers presented at the Workshop on the Analysis of Large-scale, High-Dimensional, and Multi-Variate Data Using Topology and Statistics, held in Le Barp, France, June 2013. It features the work of some of the most prominent and recognized leaders in the

field who examine challenges as well as detail solutions to the analysis of extreme scale data. The book presents new methods that leverage the mutual strengths of both topological and statistical techniques to support the management, analysis, and visualization of complex data. It covers both theory and application and provides readers with an overview of important key concepts and the latest research trends. Coverage in the book includes multi-variate and/or high-dimensional analysis techniques, feature-based statistical methods, combinatorial algorithms, scalable statistics algorithms, scalar and vector field topology, and multi-scale representations. In addition, the book details algorithms that are broadly applicable and can be used by application scientists to glean insight from a wide range of complex data sets.