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Titolo	Mathematical Technology of Networks : Bielefeld, December 2013 // edited by Delio Mugnolo
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ISBN	3-319-16619-0
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (210 p.)
Collana	Springer Proceedings in Mathematics & Statistics, , 2194-1009 ; ; 128
Disciplina	511.5
Soggetti	System theory Graph theory Computer science—Mathematics Computer mathematics Complex Systems Systems Theory, Control Graph Theory Mathematical Applications in Computer Science
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.
Nota di contenuto	Lack of ground state for NLSE on bridge-type graphs -- Dynamics on a graph as the limit of the dynamics of a "fat graph" -- Instability of stationary solutions of evolution -- Statistical characterization of a small world network applied to forest fires -- Network dynamics of an inverse problem -- Spectral inequalities for quantum graphs -- Intrinsic metrics on graphs - a survey -- Spectral gap for complete graphs: upper and lower estimates -- Sharp spectral estimates for periodic matrix-valued Jacobi operators -- Identifying key nodes in social networks using multi-criteria decision-making tools -- On band-gap structure of spectrum -- Spectra, energy and Laplacian energy of strong double graphs -- System/environment duality of nonequilibrium network observables.
Sommario/riassunto	Bringing together leading researchers in the fields of functional analysis, mathematical physics and graph theory, as well as natural scientists using networks as a tool in their own research fields, such as

neuroscience and machine learning, this volume presents recent advances in functional, analytical, probabilistic, and spectral aspects in the study of graphs, quantum graphs, and complex networks. The contributors to this volume explore the interplay between theoretical and applied aspects of discrete and continuous graphs. Their work helps to close the gap between different avenues of research on graphs, including metric graphs and ramified structures. All papers were presented at the conference "Mathematical Technology of Networks," held December 4–7, 2013 at the Zentrum für interdisziplinäre Forschung (ZiF) in Bielefeld, Germany, and are supplemented with detailed figures illustrating both abstract concepts as well as their real-world applications. Dynamical models on graphs or random graphs are increasingly used in applied sciences as mathematical tools to study complex systems whose exact structure is too complicated to be known in detail. Besides its importance in applied sciences, the field is also increasingly attracting the attention of mathematicians and theoretical physicists interested in the fundamental phenomena (synchronization, phase transitions, etc.) that can be studied in the relatively simple framework of dynamical models of random graphs.
