Record Nr. UNINA9910300531903321 Autore Cozzo Emanuele Titolo Multiplex Networks: Basic Formalism and Structural Properties / / by Emanuele Cozzo, Guilherme Ferraz de Arruda, Francisco Aparecido Rodrigues, Yamir Moreno Cham:,: Springer International Publishing:,: Imprint: Springer,, Pubbl/distr/stampa 2018 3-319-92255-6 ISBN Edizione [1st ed. 2018.] 1 online resource (124 pages): illustrations Descrizione fisica Collana Understanding Complex Systems, , 2191-5326 003 Disciplina Soggetti **Physics** Graph theory Big data Applications of Graph Theory and Complex Networks **Graph Theory** Big Data/Analytics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Chapter 1. Introduction -- Chapter 2. Multiplex Networks: Basic Nota di contenuto Definitions and Formalism -- Chapter 3. Structural Metrics -- Chapter 4. Spectra -- Chapter5. Structural organization and transitions --Chapter 6. Polynomial eigenvalue formulation -- Chapter 7. Tensorial representation. Sommario/riassunto This book provides the basis of a formal language and explores its possibilities in the characterization of multiplex networks. Armed with the formalism developed, the authors define structural metrics for multiplex networks. A methodology to generalize monoplex structural metrics to multiplex networks is also presented so that the reader will be able to generalize other metrics of interest in a systematic way. Therefore, this book will serve as a guide for the theoretical development of new multiplex metrics. Furthermore, this Brief describes the spectral properties of these networks in relation to concepts from algebraic graph theory and the theory of matrix

polynomials. The text is rounded off by analyzing the different

structural transitions present in multiplex systems as well as by a brief overview of some representative dynamical processes. Multiplex Networks will appeal to students, researchers, and professionals within the fields of network science, graph theory, and data science.