Record Nr. UNINA9910437899403321 Autore Bellucci Stefano **Titolo** Geometrical methods for power network analysis / / Stefano Bellucci, Bhupendra Nath Tiwari, Neeraj Gupta Heidelberg [Germany];; New York,: Springer, 2013 Pubbl/distr/stampa **ISBN** 9781283945721 128394572X 9783642333446 3642333443 Edizione [1st ed. 2013.] Descrizione fisica 1 online resource (106 p.) SpringerBriefs in electrical and computer engineering, , 2191-8112 Collana Altri autori (Persone) TiwariBhupendra Nath GuptaNeeraj Disciplina 621.3101516 Soggetti Electric power-plants - Planning Contact manifolds Symplectic manifolds Geometry, Riemannian 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 Methodology -- Intrinsic Geometric Characterization -- A Test of Network Reliability -- A Test of Voltage Stability -- Phases of Power Network -- Phase Shift Correction -- Complex Power Optimization --Large Scale Voltage Instability. This book is a short introduction to power system planning and Sommario/riassunto operation using advanced geometrical methods. The approach is based on well-known insights and techniques developed in theoretical physics in the context of Riemannian manifolds. The proof of principle and robustness of this approach is examined in the context of the IEEE 5 bus system. This work addresses applied mathematicians, theoretical physicists and power engineers interested in novel mathematical

approaches to power network theory.