Record Nr. UNINA9910450728703321 Autore Crowell Lawrence B Titolo Quantum fluctuations of spacetime [[electronic resource] /] / Lawrence B. Crowell New Jersey;; London,: World Scientific, 2005 Pubbl/distr/stampa 1-281-89918-6 **ISBN** 9786611899189 981-270-321-7 Descrizione fisica 1 online resource (386 p.) World Scientific series in contemporary chemical physics;; v. 25 Collana Disciplina 530.12 Quantum theory Soggetti Space and time Electronic books. Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Includes bibliographical references and index. Nota di bibliografia Nota di contenuto Preface; Contents; Chapter 1 Why Quantum Fluctuations of Spacetime?; Chapter 2 Quantum Fluctuations and Spacetime; Chapter 3 Detection of Quantum Gravity Fluctuations; Chapter 4: Quantum Gravity Fluctuations, Strings and Two Dimensional D-Branes: Chapter 5 Topology, Extra Large Dimensions and the Higgs Field; Chapter 6 Zeta Functions, Topological Quantum Numbers and M-Theory; Chapter 7 The Generalized Uncertainty Principle; Chapter 8 Octonionic Quantum Gravity; Chapter 9 Physical Law from No Law; Index Sommario/riassunto Three key aspects of quantum gravity are considered in this book: phenomenology, potential experimental aspects and foundational theory. The phenomenology is the treatment of metric quantum fluctuations as torsional curves that deviate from classical expectations. This leads to possible experimental configurations that may detect such fluctuations. Most of these proposed experiments are quantum optical measurements of subtle quantum gravity effects in the interaction of photons and atoms. The foundational discussions attempt to find an substratum to string theories, which are motivated by the