

1. Record Nr.	UNINA9910819852203321
Autore	Onaka Michiyasu <1940-2021, >
Titolo	The physics of rock failure and earthquakes / / Mitiyasu Ohnaka, The University of Tokyo, Professor Emeritus [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2013
ISBN	1-107-35783-7 1-107-23742-4 1-107-34446-8 1-107-34921-4 1-107-34821-8 1-107-34571-5 1-107-34196-5 1-139-34286-X
Descrizione fisica	1 online resource (x, 270 pages) : digital, PDF file(s)
Classificazione	SCI032000
Disciplina	551.22028/7
Soggetti	Seismology Rock mechanics Earthquakes
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1. Introduction -- 2. Fundamentals of rock failure physics -- 3. Laboratory-derived constitutive relations for shear failure -- 4. Constitutive laws for earthquake ruptures -- 5. Earthquake generation processes -- 6. Physical scale dependence -- 7. Large earthquake generation cycles and accompanying seismic activity -- References -- Index.
Sommario/riassunto	Despite significant advances in the understanding of earthquake generation processes and derivation of underlying physical laws, controversy remains regarding the constitutive law for earthquake ruptures and how it should be formulated. Laboratory experiments are necessary to obtain high-resolution measurements that allow the physical nature of shear rupture processes to be deduced, and to resolve the controversy. This important book provides a deeper

understanding of earthquake processes from nucleation to their dynamic propagation. Its key focus is a deductive approach based on laboratory-derived physical laws and formulae, such as a unifying constitutive law, a constitutive scaling law, and a physical model of shear rupture nucleation. Topics covered include: the fundamentals of rock failure physics, earthquake generation processes, physical scale dependence, and large-earthquake generation cycles. Designed for researchers and professionals in earthquake seismology, rock failure physics, geology and earthquake engineering, it is also a valuable reference for graduate students.
