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Autore	Kempainen Antti
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Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (IX, 145 p. 25 illus., 10 illus. in color.)
Collana	SpringerBriefs in Mathematical Physics, , 2197-1757 ; ; 24
Disciplina	530.13
Soggetti	Physics Mathematical physics Probabilities Statistical physics Functions of complex variables Dynamical systems Mathematical Methods in Physics Mathematical Physics Probability Theory and Stochastic Processes Statistical Physics and Dynamical Systems Several Complex Variables and Analytic Spaces Complex Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- Iteration of conformal maps -- On stochastic models and connection to statistical physics -- An example: percolation model and Cardy's formula -- On reading this book -- Introduction to stochastic calculus -- Brownian motion -- Stochastic integration -- Itô's formula -- Further topics in stochastic calculus -- Conformal invariance of two-dimensional Brownian motion -- Weak convergence of probability measures -- Introduction to conformal mappings -- Harmonic functions -- Conformal maps -- From Area theorem to distortion -- Conformally invariant tools -- Loewner equation -- Conformal maps of the upper half-plane -- Loewner chains --

Loewner equations in D and S_p -- Schramm–Loewner evolution.-
Schramm–Loewner evolution and its elementary properties -- Advanced
properties of SLE -- Proofs for some of the advanced properties --
Variants of SLE -- Moments of the derivative of the Loewner map of SLE
(k) -- Regularity and convergence of random curves -- Continuity
properties of the Loewner chains -- Continuity of SLE(k) --
Convergence of interfaces in the site percolation model -- Index.

Sommario/riassunto

This book is a short, but complete, introduction to the Loewner equation and the SLEs, which are a family of random fractal curves, as well as the relevant background in probability and complex analysis. The connection to statistical physics is also developed in the text in an example case. The book is based on a course (with the same title) lectured by the author. First three chapters are devoted to the background material, but at the same time, give the reader a good understanding on the overview on the subject and on some aspects of conformal invariance. The chapter on the Loewner equation develops in detail the connection of growing hulls and the differential equation satisfied by families of conformal maps. The Schramm–Loewner evolutions are defined and their basic properties are studied in the following chapter, and the regularity properties of random curves as well as scaling limits of discrete random curves are investigated in the final chapter. The book is aimed at graduate students or researchers who want to learn the subject fairly quickly.
