1.	Record Nr.	UNINA9910462049403321
	Autore	Nourdin Ivan
	Titolo	Normal approximations with Malliavin calculus : from Stein's method to universality / / Ivan Nourdin, Giovanni Peccati [[electronic resource]]
	Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2012
	ISBN	1-107-23077-2 1-280-87800-2 1-139-37878-3 9786613719317 1-139-37592-X 1-139-08465-8 1-139-38021-4 1-139-37193-2 1-139-37735-3
	Descrizione fisica	1 online resource (xiv, 239 pages) : digital, PDF file(s)
	Collana	Cambridge tracts in mathematics ; ; 192
	Disciplina	519.2/3
	Soggetti	Approximation theory Malliavin calculus
	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	Malliavin operators in the one-dimensional case -- Malliavin operators and isonormal Gaussian processes -- Stein's method for one-dimensional normal approximations -- Multidimensional Stein's method -- Stein meets Malliavin : univariate normal approximations -- Multivariate normal approximations -- Exploring the Breuer-Major theorem -- Computation of cumulants -- Exact asymptotics and optimal rates -- Density estimates -- Homogeneous sums and universality -- Gaussian elements, cumulants and Edgeworth expansions -- Hilbert space notation -- Distances between probability measures -- Fractional Brownian motion -- Some results from functional analysis.
	Sommario/riassunto	Stein's method is a collection of probabilistic techniques that allow one to assess the distance between two probability distributions by means

of differential operators. In 2007, the authors discovered that one can combine Stein's method with the powerful Malliavin calculus of variations, in order to deduce quantitative central limit theorems involving functionals of general Gaussian fields. This book provides an ideal introduction both to Stein's method and Malliavin calculus, from the standpoint of normal approximations on a Gaussian space. Many recent developments and applications are studied in detail, for instance: fourth moment theorems on the Wiener chaos, density estimates, Breuer-Major theorems for fractional processes, recursive cumulant computations, optimal rates and universality results for homogeneous sums. Largely self-contained, the book is perfect for self-study. It will appeal to researchers and graduate students in probability and statistics, especially those who wish to understand the connections between Stein's method and Malliavin calculus.