1.	Record Nr.	UNINA9910372750903321
	Autore	Nachmias Asaf
	Titolo	Planar Maps, Random Walks and Circle Packing [[electronic resource]] : École d'Été de Probabilités de Saint-Flour XLVIII - 2018 / / by Asaf Nachmias
	Pubbl/distr/stampa	Springer Nature, 2020 Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
	ISBN	3-030-27968-5
	Edizione	[1st ed. 2020.]
	Descrizione fisica	1 online resource (XII, 120 p. 36 illus., 8 illus. in color.)
	Collana	École d'Été de Probabilités de Saint-Flour, , 0721-5363 ; ; 2243
	Disciplina	519.2
	Soggetti	Probabilities Discrete mathematics Geometry Mathematical physics Probability Theory and Stochastic Processes Discrete Mathematics Mathematical Physics
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Sommario/riassunto	This open access book focuses on the interplay between random walks on planar maps and Koebe's circle packing theorem. Further topics covered include electric networks, the He–Schramm theorem on infinite circle packings, uniform spanning trees of planar maps, local limits of finite planar maps and the almost sure recurrence of simple random walks on these limits. One of its main goals is to present a self-contained proof that the uniform infinite planar triangulation (UIPT) is almost surely recurrent. Full proofs of all statements are provided. A planar map is a graph that can be drawn in the plane without crossing edges, together with a specification of the cyclic ordering of the edges incident to each vertex. One widely applicable method of drawing planar graphs is given by Koebe's circle packing theorem (1936). Various geometric properties of these drawings, such as existence of

accumulation points and bounds on the radii, encode important probabilistic information, such as the recurrence/transience of simple random walks and connectivity of the uniform spanning forest. This deep connection is especially fruitful to the study of random planar maps. The book is aimed at researchers and graduate students in mathematics and is suitable for a single-semester course; only a basic knowledge of graduate level probability theory is assumed.