1. Record Nr. UNINA9910917784003321

Autore	Carroll Tom
Titolo	Geometric Function Theory : A Second Course in Complex Analysis / / by Tom Carroll
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2024
ISBN	9783031737275 9783031737268
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (358 pages)
Collana	Springer Undergraduate Mathematics Series, , 2197-4144
Disciplina	515.9
Soggetti	Functions of complex variables Geometry, Hyperbolic Teoria geomètrica de funcions Geometria hiperbòlica Functions of a Complex Variable Hyperbolic Geometry Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1 Introduction -- 2 The Complex Plane - Preparatory Topics -- 3 The Riemann Sphere -- 4 The Hyperbolic Disk -- 5 Normal Families and Value Distribution -- 6 Simply Connected Domains and the Riemann Mapping Theorem -- 7 Runge's Theorem and Further Characterisations of Simply Connected Domains -- 8 Univalent Functions - the Basics -- 9 Carathéodory Convergence of Domains and Hyperbolic Geodesics -- 10 Uniformisation of Planar Domains.
Sommario/riassunto	This textbook provides a second course in complex analysis with a focus on geometric aspects. It covers topics such as the spherical geometry of the extended complex plane, the hyperbolic geometry of the Poincaré disk, conformal mappings, the Riemann Mapping Theorem and uniformisation of planar domains, characterisations of simply connected domains, the convergence of Riemann maps in terms of Carathéodory convergence of the image domains, normal families and Picard's theorems on value distribution, as well as the fundamentals of univalent function theory. Throughout the text, the synergy between

analysis and geometry is emphasised, with proofs chosen for their directness. The textbook is self-contained, requiring only a first undergraduate course in complex analysis. The minimal topology needed is introduced as necessary. While primarily aimed at upper-level undergraduates, the book also serves as a concise reference for graduates working in complex analysis.