

1. Record Nr.	UNINA9910742500203321
Autore	Beals Richard
Titolo	More Explorations in Complex Functions // by Richard Beals, Roderick S.C. Wong
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2023
ISBN	3-031-28288-4
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (410 pages)
Collana	Graduate Texts in Mathematics, , 2197-5612 ; ; 298
Altri autori (Persone)	WongRoderick S. C
Disciplina	515.9
Soggetti	Functions of complex variables Functions, Special Number theory Functions of a Complex Variable Special Functions Number Theory Fonctions de diverses variables complexes Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1. Basics -- 2. Further preliminaries -- 3. Complex dynamics -- 4. Univalent functions and de Brange's theorem -- 5. Harmonic and subharmonic functions; the Dirichlet problem -- 6. General Riemann surfaces -- 7. The uniformization theorem -- 8. Quasiconformal mapping -- 9. Introduction to Teichmüller theory -- 10. The Bergman kernel -- 11. Theta functions -- 12. Padé approximants and continued fractions -- 13. Riemann–Hilbert problems -- 14. Asymptotic and Darboux's method -- References -- Index.
Sommario/riassunto	More Explorations in Complex Functions is something of a sequel to GTM 287, Explorations in Complex Functions. Both texts introduce a variety of topics, from core material in the mainstream of complex analysis to tools that are widely used in other areas of mathematics and applications, but there is minimal overlap between the two books. The intended readership is the same, namely graduate students and researchers in complex analysis, independent readers, seminar attendees, or instructors for a second course in complex analysis.

Instructors will appreciate the many options for constructing a second course that builds on a standard first course in complex analysis. Exercises complement the results throughout. There is more material in this present text than one could expect to cover in a year's course in complex analysis. A mapping of dependence relations among chapters enables instructors and independent readers a choice of pathway to reading the text. Chapters 2, 4, 5, 7, and 8 contain the function theory background for some stochastic equations of current interest, such as SLE. The text begins with two introductory chapters to be used as a resource. Chapters 3 and 4 are stand-alone introductions to complex dynamics and to univalent function theory, including deBrange's theorem, respectively. Chapters 5—7 may be treated as a unit that leads from harmonic functions to covering surfaces to the uniformization theorem and Fuchsian groups. Chapter 8 is a stand-alone treatment of quasiconformal mapping that paves the way for Chapter 9, an introduction to Teichmüller theory. The final chapters, 10–14, are largely stand-alone introductions to topics of both theoretical and applied interest: the Bergman kernel, theta functions and Jacobi inversion, Padé approximants and continued fractions, the Riemann—Hilbert problem and integral equations, and Darboux's method for computing asymptotics.

---