1.	Record Nr.	UNINA9910790469303321
	Autore	Girondo Ernesto
	Titolo	Introduction to compact Riemann surfaces and dessins d'enfants / / Ernesto Girondo, Gabino Gonzalez-Diez [[electronic resource]]
	Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2012
	ISBN	1-107-08470-9 1-107-22435-7 1-280-48433-0 9786613579317 1-139-20529-3 1-139-20311-8 1-139-20169-7 1-139-20609-5 1-139-20451-3 1-139-04891-0
	Descrizione fisica	1 online resource (xii, 298 pages) : digital, PDF file(s)
	Collana	London Mathematical Society student texts ; ; 79
	Disciplina	515.93
	Soggetti	Riemann surfaces Dessins d'enfants (Mathematics)
	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	Cover; LONDON MATHEMATICAL SOCIETY STUDENT TEXTS; Title; Copyright; Dedication; Contents; Preface; 1 Compact Riemann surfaces and algebraic curves; 1.1 Basic definitions; 1.1.1 Riemann surfaces - examples; 1.1.2 Morphisms of Riemann surfaces; 1.1.3 Differentials; 1.2 Topology of Riemann surfaces; 1.2.1 The topological surface underlying a compact Riemann surface; 1.2.2 The fundamental group; 1.2.3 The Euler-Poincare characteristic; 1.2.4 The Riemann-Hurwitz formula for morphisms to the sphere; 1.2.6 Ramified coverings 1.2.7 Auxiliary results about the compactification of Riemann surfaces and extension of maps1.3 Curves, function fields and Riemann surfaces; 1.3.1 The function field of a Riemann surface; 1.3.2 Manipulating generators of a function field; 2 Riemann surfaces and

discrete groups; 2.1 Uniformization; 2.1.1 PSL(2,R) as the group of isometries of hyperbolic space; 2.1.2 Groups uniformizing Riemann surfaces of genus g = 2; 2.2 The existence of meromorphic functions; 2.2.1 Existence of functions in genus g = 1; 2.2.2 Existence of functions in genus g = 2; 2.3 Fuchsian groups
2.4 Fuchsian triangle groups2.4.1 Triangles in hyperbolic space; 2.4.2 Reflections; 2.4.3 Construction of triangle groups; 2.4.4 The modular group PSL(2,Z); 2.5 Automorphisms of Riemann surfaces; 2.5.1 The action of the automorphism group on the function field; 2.5.2 Uniformization of Klein's curve of genus three; 2.6 The moduli space of compact Riemann surfaces; 2.6.1 The moduli space M1; 2.6.2 The moduli space Mg for g > 1; 2.7 Monodromy; 2.7.1 Monodromy and Fuchsian groups; 2.7.2 Characterization of a morphism by its monodromy; 2.8 Galois coverings; 2.9 Normalization of a covering of P1
2.9.1 The covering group of the normalization3 Belyi's Theorem; 3.1 Proof of part (a) => (b) of Belyi's Theorem; 3.1.1 Belyi's second proof of part (a) => (b); 3.2 Algebraic characterization of morphisms; 3.3 Galois action; 3.4 Points and valuations; 3.4.1 Galois action on points; 3.5 Elementary invariants of the action of Gal(C); 3.6 A criterion for definability over Q; 3.6.1 Proof of part (b) => (a) of Belyi's Theorem; 3.7 Proof of the criterion for definibility over Q; 3.7.1 Specialization of transcencendental coefficients; 3.7.2 Infinitesimal specializations; 3.7.3 End of the proof
3.8 The field of definition of Belyi functions4 Dessins d'enfants; 4.1 Definition and first examples; 4.1.1 The permutation representation pair of a dessin; 4.2 From dessins d'enfants to Belyi pairs; 4.2.1 The triangle decomposition associated to a dessin; 4.2.2 The Belyi function associated to a dessin; 4.3 From Belyi pairs to dessins; 4.3.1 The monodromy of a Belyi pair; 4.4 Fuchsian group description of Belyi pairs; 4.4.1 Uniform dessins; 4.4.2 Automorphisms of a dessin; 4.4.3 Regular dessins; 4.5 The action of Gal(Q) on dessins d'enfants; 4.5.1 Faithfulness on dessins of genus 0
4.5.2 Faithfulness on dessins of genus 1

Sommario/riassunto

Few books on the subject of Riemann surfaces cover the relatively modern theory of dessins d'enfants (children's drawings), which was launched by Grothendieck in the 1980s and is now an active field of research. In this 2011 book, the authors begin with an elementary account of the theory of compact Riemann surfaces viewed as algebraic curves and as quotients of the hyperbolic plane by the action of Fuchsian groups of finite type. They then use this knowledge to introduce the reader to the theory of dessins d'enfants and its connection with algebraic curves defined over number fields. A large number of worked examples are provided to aid understanding, so no experience beyond the undergraduate level is required. Readers without any previous knowledge of the field of dessins d'enfants are taken rapidly to the forefront of current research.