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Nota di contenuto	Front matter -- Chapter I. Möbius transformations and non-euclidean geometry. -- §1 Pencils of circles - inversive geometry -- §2 Cross-ratio -- §3 Möbius transformations, direct and reversed -- §4 Invariant points and classification of Möbius transformations -- §5 Complex distance of two pairs of points -- §6 Non-euclidean metric -- §7 Isometric transformations -- §8 Non-euclidean trigonometry -- §9 Products and commutators of motions -- Chapter II. Discontinuous groups of motions and reversions. -- §10 The concept of discontinuity -- §11 Groups with invariant points or lines -- §12 A discontinuity theorem -- §13 -groups. Fundamental set and limit set -- §14 The convex domain of an -group. Characteristic and isometric neighbourhood -- §15 Quasi-compactness modulo and finite generation of -- Chapter III. Surfaces associated with discontinuous groups. -- §16 The surfaces D modulo and K() modulo -- §17 Area and type numbers -- Chapter IV. Decompositions of groups. -- §18 Composition of groups -- §19 Decomposition of groups -- §20 Decompositions of -groups containing reflections -- §21 Elementary groups and elementary surfaces -- §22 Complete decomposition and normal form in the case of quasi-compactness -- §23 Exhaustion in the case of non-quasi-compactness -- Chapter V. Isomorphism and homeomorphism. -- §24 Topological and geometrical isomorphism -- §25 Topological and geometrical homeomorphism -- §26 Construction

of g -mappings. Metric parameters. Congruent groups -- Symbols and definitions -- Alphabets -- Bibliography -- Index

Sommario/riassunto

This is an introductory textbook on isometry groups of the hyperbolic plane. Interest in such groups dates back more than 120 years. Examples appear in number theory (modular groups and triangle groups), the theory of elliptic functions, and the theory of linear differential equations in the complex domain (giving rise to the alternative name Fuchsian groups). The current book is based on what became known as the famous Fenchel-Nielsen manuscript. Jakob Nielsen (1890-1959) started this project well before World War II, and his interest arose through his deep investigations on the topology of Riemann surfaces and from the fact that the fundamental group of a surface of genus greater than one is represented by such a discontinuous group. Werner Fenchel (1905-1988) joined the project later and overtook much of the preparation of the manuscript. The present book is special because of its very complete treatment of groups containing reversions and because it avoids the use of matrices to represent Moebius maps. This text is intended for students and researchers in the many areas of mathematics that involve the use of discontinuous groups.
