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Nota di contenuto	Introduction to Teichmuller theory, old and new / Athanase Papadopoulos -- Harmonic maps and Teichmuller theory / Georgios D. Daskalopoulos, Richard A. Wentworth -- On Teichmuller's metric and Thurston's asymmetric metric on Teichmuller space / Athanase Papadopoulos, Guillaume Theret -- Surfaces, circles, and solenoids / Robert C. Penner -- About the embedding of Teichmuller space in the space of geodesic Holder distributions / Jean-Pierre Otal -- Teichmuller spaces, triangle groups and Grothendieck dessins / William J. Harvey -- On the boundary of Teichmuller disks in Teichmuller and in Schottky space / Frank Herrlich, Gabriela Schmithusen -- Introduction to mapping class groups of surfaces and related groups / Shigeyuki Morita -- Geometric survey of subgroups of mapping class groups / John Loftin -- Deformations of Kleinian groups / Albert Marden -- Geometry of the complex of curves and of Teichmuller space / Ursula Hamenstadt -- Parameters for generalized Teichmuller spaces / Charalampos Charitos, Ioannis Papadoperakis -- On the moduli space of singular euclidean surfaces / Marc Troyanov -- Discrete Riemann surfaces / Christian Mercat -- On quantizing Teichmuller and Thurston theories / Leonid Chekhov, Robert C. Penner -- Dual Teichmuller and lamination spaces / Vladimir V. Fock, Alexander Goncharov -- An

analog of a modular functor from quantized Teichmuller theory / Jorg Teschner -- On quantum moduli space of flat PSL2()-connections on a punctured surface / Rinat Kashaev.

Sommario/riassunto

The Teichmuller space of a surface was introduced by O. Teichmuller in the 1930s. It is a basic tool in the study of Riemann's moduli space and of the mapping class group. These objects are fundamental in several fields of mathematics including algebraic geometry, number theory, topology, geometry, and dynamics. The original setting of Teichmuller theory is complex analysis. The work of Thurston in the 1970s brought techniques of hyperbolic geometry in the study of Teichmuller space and of its asymptotic geometry. Teichmuller spaces are also studied from the point of view of the representation theory of the fundamental group of the surface in a Lie group G, most notably G =PSL(2,) and G=PSL(2,). In the 1980s, there evolved an essentially combinatorial treatment of the Teichmuller and moduli spaces involving techniques and ideas from high-energy physics, namely from string theory. The current research interests include the quantization of Teichmuller space, the Weil-Petersson symplectic and Poisson geometry of this space as well as gauge-theoretic extensions of these structures. The quantization theories can lead to new invariants of hyperbolic 3-manifolds. The purpose of this handbook is to give a panorama of some of the most important aspects of Teichmuller theory. The handbook should be useful to specialists in the field, to graduate students, and more generally to mathematicians who want to learn about the subject. All the chapters are self-contained and have a pedagogical character. They are written by leading experts in the subject.