

Prologue

This book is intended to be a self-contained and elementary presentation from first principles of a theory developed by the author and collaborators over the last 25 years. It has arisen from lecture notes for a master's class on decorated Teichmüller theory taught at Aarhus University during August, 2006, under the aegis of the Center for the Topology and Quantization of Moduli Spaces, which has evolved into the Center for the Quantum Geometry of Moduli Spaces. It is an honor to present this inaugural volume in what is hoped will be a stimulating series based on master's classes presented at the center.

It is a great pleasure to thank my colleague, collaborator and friend Jørgen Ellegaard Andersen for organizing the master's class and arranging my original visit to Aarhus, which is now my principal academic home. Let me also thank the other participants in the class, who made many valuable and sometimes critical comments, including Marcel Bökstedt, Bill Browder, Niels Gammelgaard, Magnus Lauridsen, especially Gregor Masbaum, Guillaume Theret, Rasmus Villemoes and Yannis Vlassopoulos. Further thanks are due to Alex Bene, Rinat Kashaev and Dylan Thurston for useful discussions.

One goal of this monograph is to present global affine coordinates on decorated Teichmüller spaces as well as natural cell decompositions of these spaces, which are necessary for the quantization of Teichmüller spaces and for the simplest geometric occurrences of cluster algebras. However, there are many further applications and extensions of these basic ingredients discussed here as well, for instance, to algebraic number theory, harmonic analysis, profinite and pronilpotent versions of surfaces, the topology of Riemann's moduli spaces, topological and conformal field theories and computational biology.