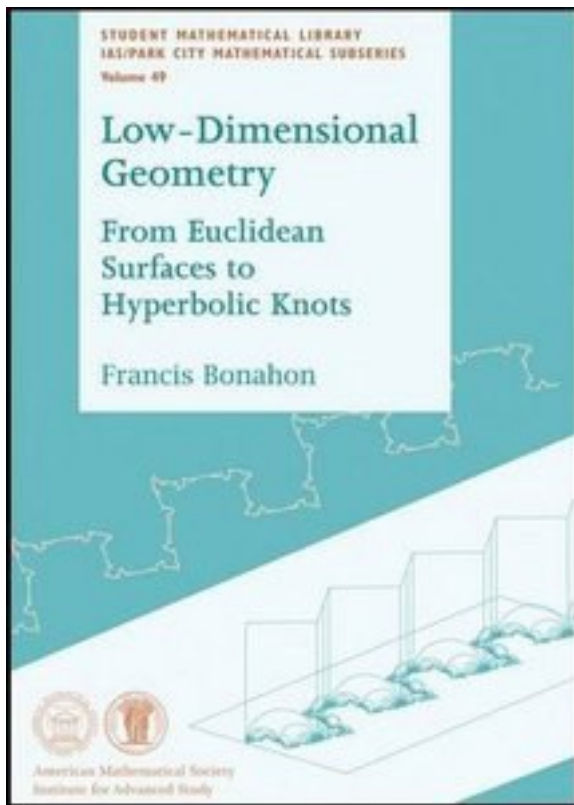# Low-Dimensional Geometry

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著者:Bonahon, Francis

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The study of 3-dimensional spaces brings together elements from several areas of mathematics. The most notable are topology and geometry, but elements of number theory and analysis also make appearances. In the past 30 years, there have been striking developments in the mathematics of 3-dimensional manifolds. This book aims to introduce undergraduate students to some of these important developments.

Low-Dimensional Geometry starts at a relatively elementary level, and its early

chapters can be used as a brief introduction to hyperbolic geometry. However, the ultimate goal is to describe the very recently completed geometrization program for 3-dimensional manifolds. The journey to reach this goal emphasizes examples and concrete constructions as an introduction to more general statements. This includes the tessellations associated to the process of gluing together the sides of a polygon. Bending some of these tessellations provides a natural introduction to 3-dimensional hyperbolic geometry and to the theory of kleinian groups, and it eventually leads to a discussion of the geometrization theorems for knot complements and 3-dimensional manifolds.

This book is illustrated with many pictures, as the author intended to share his own enthusiasm for the beauty of some of the mathematical objects involved. However, it also emphasizes mathematical rigor and, with the exception of the most recent research breakthroughs, its constructions and statements are carefully justified.

作者介绍:

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Mathematics

评论

An introduction to geometric topology. Plain words with sufficient figures.// 'The remote control' is the key feature, guiding one skip some long detailed proof of theorems at first reading.// Tessellation and figure-eight knot parts are really interesting.// A subject in math that I can accept, but still found it hard to learn.(orz

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书评

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