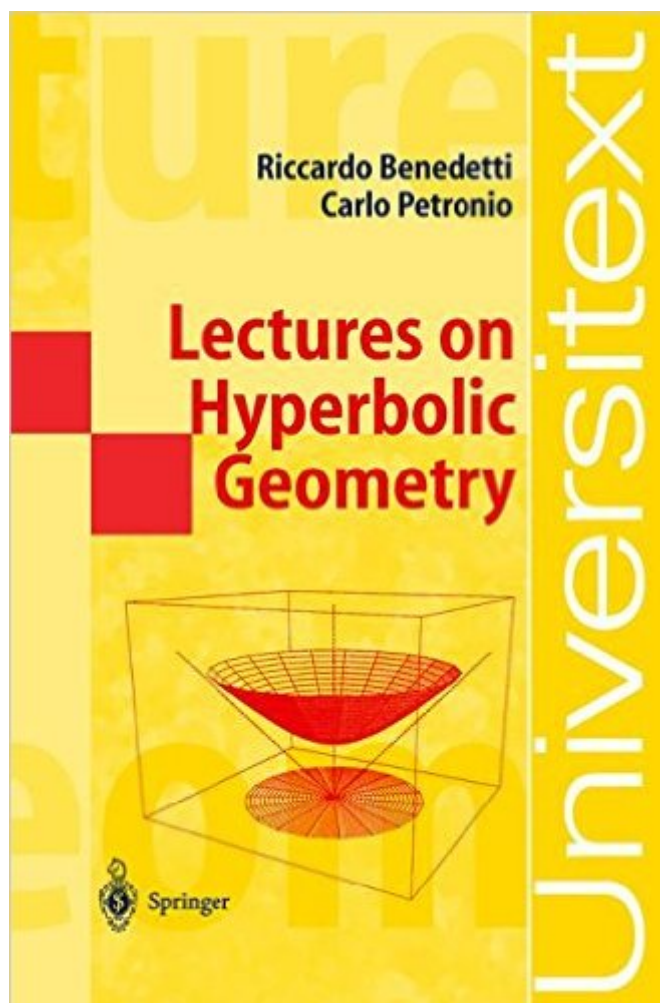The book was found

Lectures On Hyperbolic Geometry (Universitext)

Synopsis

Focussing on the geometry of hyperbolic manifolds, the aim here is to provide an exposition of some fundamental results, while being as self-contained, complete, detailed and unified as possible. Following some classical material on the hyperbolic space and the TeichmÃ ller space, the book centers on the two fundamental results: Mostow's rigidity theorem (including a complete proof, following Gromov and Thurston) and Margulis' lemma. These then form the basis for studying Chabauty and geometric topology; a unified exposition is given of Wang's theorem and the Jorgensen-Thurston theory; and much space is devoted to the 3D case: a complete and elementary proof of the hyperbolic surgery theorem, based on the representation of three manifolds as glued ideal tetrahedra.

Book Information

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Average Customer Review: 4.0 out of 5 starsÂ Â See all reviewsÂ (4 customer reviews)

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Customer Reviews

This book strikes a great balance between detail and intuition. As another reviewer noted, the book falls neatly between Ratcliffe's "Foundations of hyperbolic manifolds" and Thurston's "The geometry and topology of three-manifolds" on the detail/intuition scale. Personally, I've found it to be the best of the three to learn from.One customer complained that Benedetti-Petronio contains too few pictures. I would argue that it contains plenty. For one thing, the book contains more pictures than most geometry books I've ever used. Even better, many of the pictures are detailed and explanatory

enough to serve as proofs in and of themselves (see Figure B.10 for a good example). Most importantly, Benedetti-Petronio contains very complete proofs of the Mostow rigidity theorem, Margulis's lemma, Thurston's hyperbolic Dehn surgery theorem, and consequences of all these results.One word of warning: the given proof of Thurston's hyperbolic Dehn surgery theorem is incorrect due to Theorem E.5.9 which is a result that (I think) has not yet been proved. Petronio and Porti modify the proof in their paper "Negatively oriented ideal triangulations and a proof of Thurston's hyperbolic Dehn filling theorem" in order to fix the error.

I found this book to be quite helpful. It is a nice compliment to either Thurston's or Ratcliffe's book. Results are generally proved in a somewhat more restricted setting than in Thurston (making results like Margulis lemma easier to understand on first meeting). The proofs in Ratcliffe seem very dry in comparison with the present work (the authors here tend to be more geometric in their arguments). As a matter of fact, I would put this book somewhere about the midpoint of the geometric intuition spectrum between Ratcliffe and Thurston.

Excellent book and excellent service!

More drawings should have been included, the rest of the book was clearly worked out. It is also suitable for new competitors in Noneuclidean Geometry. Only minus the few drawings.

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