<<代数拓扑中微分形式>>

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前言

The guiding principle in this book is to use differential forms as an aid inexploring some of the less digestible aspects of algebraic topology. Accord-ingly, we move primarily in the realm of smooth manifolds and use thede Rham theory as a prototype of all of cohomology. For applications tohomotopy theory we also discuss by way of analogy cohomoiogy witharbitrary coefficients. Although we have in mind an audience with prior exposure to algebraicor differential topology, for the most part a good knowledge of linearalgebra, advanced calculus, and point-set topology should suffice. Someacquaintance with manifolds, simplicial complexes, singular homology andcohomology, and homotopy groups is helpful, but not really necessary.Within the text itself we have stated with care the more advanced resultsthat are needed, so that a mathematically mature reader who accepts thesebackground materials on faith should be able to read the entire book withthe minimal prerequisites.There are more materials here than can be reasonably covered in aone-semester course. Certain sections may be omitted at first reading with-out loss of continuity. We have indicated these in the schematic diagramthat follows. This book is not intended to be foundational; rather, it is only meant toopen some of the doors to the formidable edifice of modern algebraictopology. We offer it in the hope that such an informal account of thesubject at a semi-introductory level fills a gap in the literature. It would be impossible to mention all the friends, colleagues, andstudents whose ideas have contributed to this book. But the seniorauthor would like on this occasion to express his deep gratitude, firstof all to his primary topology teachers E. Specker, N.

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内容概要

The guiding principle in this book is to use differential forms as an aid inexploring some of the less digestible aspects of algebraic topology. Accord-ingly, we move primarily in the realm of smooth manifolds and use thede Rham theory as a prototype of all of cohomology. For applications tohomotopy theory we also discuss by way of analogy cohomoiogy witharbitrary coefficients. Although we have in mind an audience with prior exposure to algebraicor differential topology, for the most part a good knowledge of linearalgebra, advanced calculus, and point-set topology should suffice. Someacquaintance with manifolds, simplicial complexes, singular homology andcohomology, and homotopy groups is helpful, but not really necessary.Within the text itself we have stated with care the more advanced resultsthat are needed, so that a mathematically mature reader who accepts thesebackground materials on faith should be able to read the entire book withthe minimal prerequisites.

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