

<<Smooth manifolds and>>

图书基本信息

书名：<<Smooth manifolds and observables光滑的多头管和可测>>

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内容概要

Smooth Manifolds and Observables is about the differential calculus, smooth manifolds, and commutative algebra. While these theories arose at different times and under completely different circumstances, this book demonstrates how they constitute a unified whole. The motivation behind this synthesis is the mathematical formalization of the process of observation in classical physics. The main objective of this book is to explain how differential calculus is a natural part of commutative algebra. This is achieved by studying the corresponding algebras of smooth functions that result in a general construction of the differential calculus on various categories of modules over the given commutative algebra. It is shown in detail that the ordinary differential calculus and differential geometry on smooth manifolds turns out to be precisely the particular case that corresponds to the category of geometric modules over smooth algebras. This approach opens the way to numerous applications, ranging from delicate questions of algebraic geometry to the theory of elementary particles. This unique textbook contains a large number of exercises and is intended for advanced undergraduates, graduate students, and research mathematicians and physicists.

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