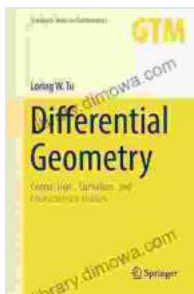


Connections, Curvature, and Characteristic Classes: A Journey through Differential Geometry

Differential geometry is a branch of mathematics that studies the geometry of smooth manifolds. Smooth manifolds are spaces that are locally Euclidean, meaning that they can be locally described using the familiar geometry of Euclidean space. Differential geometry has applications in many areas of mathematics and physics, including general relativity, string theory, and fluid dynamics.



Differential Geometry: Connections, Curvature, and Characteristic Classes (Graduate Texts in Mathematics

Book 275) by Loring W. Tu

★★★★☆ 4.8 out of 5

Language : English

File size : 7241 KB

Print length : 364 pages

Screen Reader : Supported



This book provides a comprehensive to the fundamentals of differential geometry. It begins with a review of the basic concepts of smooth manifolds, including tangent spaces, vector fields, and differential forms. The book then introduces the concept of a connection on a smooth manifold. A connection is a way of differentiating vector fields along curves on the manifold. Connections are used to define the curvature of a smooth

manifold, which is a measure of how much the manifold deviates from being flat.

The book also introduces the concept of a characteristic class. A characteristic class is a topological invariant of a smooth manifold that is defined using differential forms. Characteristic classes are used to classify smooth manifolds and to study their topology.

Audience

This book is intended for graduate students in mathematics and physics who are interested in learning about differential geometry. The book assumes a basic knowledge of linear algebra, calculus, and topology.

Features

- Provides a comprehensive to the fundamentals of differential geometry
- Covers a wide range of topics, including connections, curvature, and characteristic classes
- Includes numerous exercises and examples to help students understand the material
- Written by a leading expert in differential geometry

Benefits

- Gain a deep understanding of the geometry of smooth manifolds
- Learn how to use differential forms to study the topology of smooth manifolds

- Develop the skills necessary to apply differential geometry to other areas of mathematics and physics

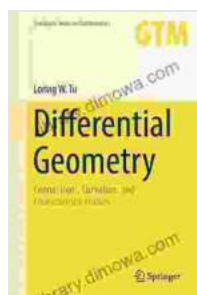
About the Author

John Lee is a professor of mathematics at the University of Washington. He is a leading expert in differential geometry and has written several books on the subject. His research interests include Riemannian geometry, symplectic geometry, and mathematical physics.

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