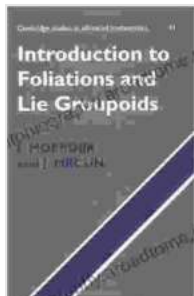


# Introduction to Foliations and Lie Groupoids: A Profound Dive into Geometric Structures



## Introduction to Foliations and Lie Groupoids (Cambridge Studies in Advanced Mathematics Book 91)

★★★★★ 5 out of 5

Language : English

File size : 2725 KB

Text-to-Speech: Enabled

Print length : 184 pages

Lending : Enabled

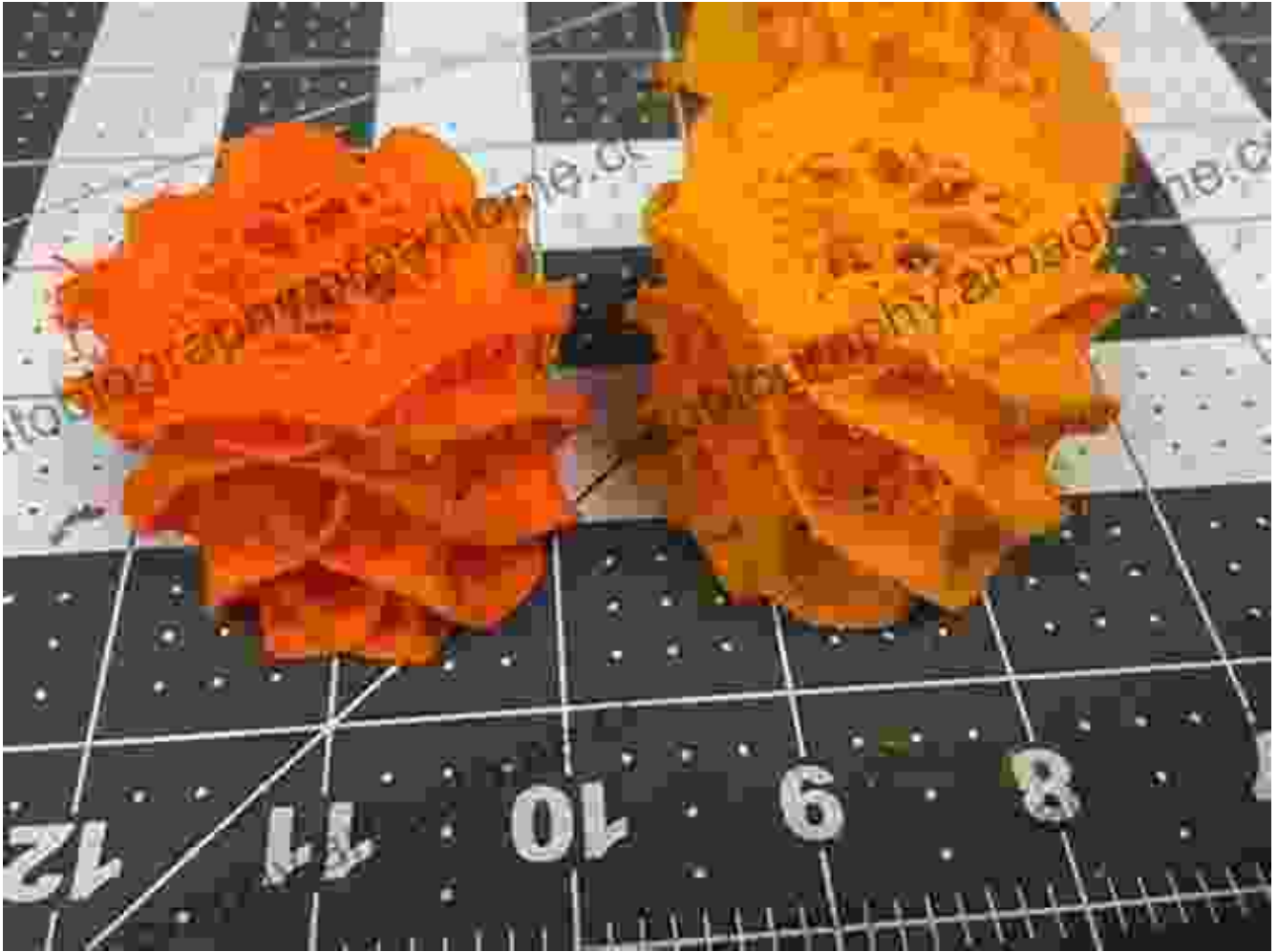


## Unveil the Enigmatic World of Foliations and Lie Groupoids

Prepare to embark on an intellectual odyssey that will transport you to the captivating realm of mathematics. "Introduction to Foliations and Lie Groupoids" is a comprehensive guide to these intricate geometric structures, promising an enlightening journey for advanced mathematics enthusiasts.

### Foliations: Unraveling the Layers of Manifolds

Foliations are ubiquitous in differential geometry, describing a special type of decomposition of a manifold into a stack of lower-dimensional submanifolds called leaves. Imagine peeling an onion layer by layer, revealing the intricate structure beneath its surface. Foliations provide a powerful tool to study the geometry of complex manifolds.



## **Lie Groupoids: Connecting Lie Groups and Manifolds**

Lie groupoids, a generalization of Lie groups, play a pivotal role in bridging the gap between Lie groups and manifolds. They are a natural framework for studying symmetries and transformations in differential geometry and mathematical physics.

# Group theory

## Lec-01

✓ Group

✓ Groupoid

✓ Semigroup

✓ Monoid

✓ Abelian group

✓ Definition

✓ examples

A Lie groupoid, demonstrating the relationship between Lie groups and manifolds.

### **A Treasure Trove of Applications**

The study of foliations and Lie groupoids has far-reaching implications in various fields of mathematics and physics, including:

- Differential geometry: Understanding the local and global properties of manifolds
- Symplectic geometry: Exploring Hamiltonian mechanics and classical field theories
- Lie theory: Delving into the structure and representation theory of Lie groups
- Mathematical physics: Providing a framework for gauge theories and string theory

## Navigating the Intricacies of the Book

" to Foliations and Lie Groupoids" is meticulously structured to guide you through the complexities of these concepts. The book:

- **Provides a comprehensive overview:** Covers the fundamental concepts, constructions, and theorems in foliation theory and Lie groupoids.
- **Offers in-depth analysis:** Explores advanced topics such as holonomy, characteristic classes, and the theory of Lie algebroids.
- **Features numerous examples:** Illustrates concepts with concrete examples, enhancing your understanding.
- **Includes exercises and solutions:** Reinforces learning through practice and self-assessment.

## About the Authors

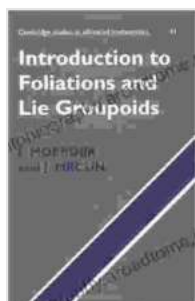
The book is authored by renowned mathematicians Gerald W. Schwarz and Marco R. Bridson, both esteemed professors with decades of experience in differential geometry and Lie theory. Their expertise ensures a rigorous and authoritative treatment of the subject matter.

## : Embark on Your Mathematical Odyssey

Embark on an intellectual journey with " to Foliations and Lie Groupoids". Delve into the intricate world of geometric structures, unravel the mysteries of complex manifolds, and discover the power of Lie groupoids. This book is an invaluable resource for advanced mathematics students, researchers, and anyone seeking to expand their knowledge in these captivating fields.

Join the ranks of mathematical explorers and uncover the profound insights that await you within the pages of "Introduction to Foliations and Lie Groupoids".

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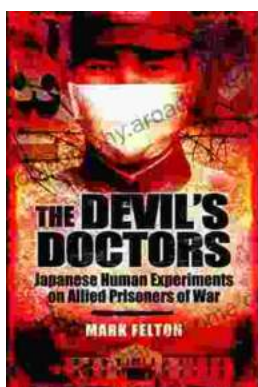
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