

A Gentle Introduction to Knots, Links, and Braids

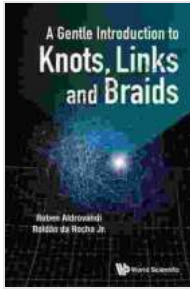


Gentle Introduction To Knots, Links And Braids, A

by Stephen T. Thornton

★★★★☆ 4.1 out of 5

Language : English



File size	: 9849 KB
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Knots, links, and braids are fascinating mathematical structures that have captivated the minds of mathematicians and artists for centuries. These intricate configurations of curves and strings have found applications in diverse fields, from physics and engineering to computer science and art.

This book provides a gentle and engaging to the world of knots, links, and braids. Written in a clear and accessible style, it assumes no prior mathematical knowledge and gradually builds up your understanding of these fundamental concepts. Through a combination of intuitive explanations, captivating examples, and hands-on activities, you will gain a deep appreciation for the beauty and complexity of these mathematical objects.

Knots

A knot is a closed curve that does not intersect itself. In other words, it is a loop of string that can be pulled tight without cutting or tangling. Knots have been studied for thousands of years, and they have been used for everything from decoration to communication.

In this book, you will learn about the different types of knots, how to tie them, and how to classify them. You will also explore some of the mathematical properties of knots, such as their knot invariants and their relationship to other mathematical structures.

Links

A link is a collection of knots that are linked together. In other words, it is a set of strings that are intertwined but do not intersect. Links are more complex than knots, and they have been used for centuries to represent relationships between objects.

In this book, you will learn about the different types of links, how to draw them, and how to classify them. You will also explore some of the mathematical properties of links, such as their linking number and their relationship to other mathematical structures.

Braids

A braid is a collection of strands that are intertwined in a regular pattern. Braids have been used for centuries to decorate hair and clothing, and they have also been used in mathematics to represent certain types of groups.

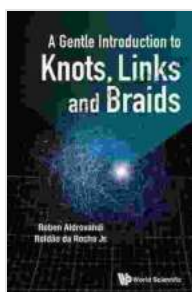
In this book, you will learn about the different types of braids, how to braid them, and how to classify them. You will also explore some of the mathematical properties of braids, such as their braid index and their relationship to other mathematical structures.

Applications

Knots, links, and braids have found applications in a wide range of fields, from physics and engineering to computer science and art.

In physics, knots are used to model the behavior of molecules and atoms. In engineering, knots are used to design bridges and other structures. In computer science, knots are used to represent data structures and algorithms. In art, knots are used to create beautiful and intricate designs.

Knots, links, and braids are fascinating mathematical structures with a wide range of applications. This book provides a gentle and engaging to these fundamental concepts, making them accessible to anyone with an interest in mathematics or the world around them.



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