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Autore	Dye Heather A.
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Descrizione fisica	1 online resource (285 pages) : illustrations, tables
Disciplina	514/.2242
Soggetti	Knot theory
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Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Knots and crossingsVirtual knots and links CURVES IN THE PLANE VIRTUAL LINKS ORIENTED VIRTUAL LINK DIAGRAMS -- Linking invariants CONDITIONAL STATEMENTS WRITHE AND LINKING NUMBER DIFFERENCE NUMBER CROSSING WEIGHT NUMBERS -- A multiverse of knots FLAT AND FREE LINKS WELDED, SINGULAR, AND PSEUDO KNOTS NEW KNOT THEORIES -- Crossing invariants CROSSING NUMBERS UNKNOTTING NUMBERS UNKNOTTING SEQUENCE NUMBERS -- Constructing knots SYMMETRY TANGLES, MUTATION, AND PERIODIC LINKS PERIODIC LINKS AND SATELLITE KNOTS -- Knot polynomialsThe bracket polynomial THE NORMALIZED KAUFFMAN BRACKET POLYNOMIAL THE STATE SUM THE IMAGE OF THE F-POLYNOMIAL-- Surfaces SURFACES CONSTRUCTIONS OF VIRTUAL LINKS GENUS OF A VIRTUAL LINK -- Bracket polynomial II STATES AND THE BOUNDARY PROPERTY PROPER STATES DIAGRAMS WITH ONE VIRTUAL CROSSING -- The checkerboard framing CHECKERBOARD FRAMINGS CUT POINTS EXTENDING THE KAUFFMAN-MURASUGI-THISTLETHWAITE THEOREM-- Modifications of the bracket polynomial THE FLAT BRACKET THE ARROW POLYNOMIAL VASSILIEV INVARIANTS -- Algebraic

structuresQuandles TRICOLORING QUANDLES KNOT QUANDLES -- Knots and quandles A LITTLE LINEAR ALGEBRA AND THE TREFOIL THE DETERMINANT OF A KNOT THE ALEXANDER POLYNOMIAL THE FUNDAMENTAL GROUP -- Biquandles THE BIQUANDLE STRUCTURE THE GENERALIZED ALEXANDER POLYNOMIAL -- Gauss diagrams GAUSS WORDS AND DIAGRAMS PARITY AND PARITY INVARIANTS CROSSING WEIGHT NUMBER -- Applications QUANTUM COMPUTATION TEXTILES -- Appendix A: Tables Appendix B: References by Chapter-- Open problems and projects appear at the end of each chapter.

Sommario/riassunto

The Only Undergraduate Textbook to Teach Both Classical and Virtual Knot Theory. An Invitation to Knot Theory: Virtual and Classical gives advanced undergraduate students a gentle introduction to the field of virtual knot theory and mathematical research. It provides the foundation for students to research knot theory and read journal articles on their own. Each chapter includes numerous examples, problems, projects, and suggested readings from research papers. The proofs are written as simply as possible using combinatorial approaches, equivalence classes, and linear algebra. The text begins with an introduction to virtual knots and counted invariants. It then covers the normalized f-polynomial (Jones polynomial) and other skein invariants before discussing algebraic invariants, such as the quandle and biquandle. The book concludes with two applications of virtual knots: textiles and quantum computation.