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Nota di contenuto	Contents; Preface; 1. Notation of Knots and Links; 1.1 Basic graph theory; 1.2 Shadows of KLs; 1.2.1 Gauss and Dowker code; 1.3 KL diagrams; 1.4 Reidemeister moves; 1.5 Conway notation; 1.6 Classification of KLs; 1.7 LinKnot functions and KL notation; 1.8 Rational world and KL invariants; 1.8.1 Chirality of rational KLs; 1.9 Unlinking number and unlinking gap; 1.10 Prime and composite KLs; 1.11 Non-invertible KLs; 1.11.1 Tangle types; 1.11.2 Non-invertible pretzel knots; 1.11.3 Non-invertible arborescent knots; 1.11.4 Non-invertible polyhedral knots; 1.12 Reduction of R-tangles 1.12.1 KLs with unlinking number one1.13 Braids; 1.13.1 KLs and braids; 1.14 Braid family representatives; 1.14.1 Applications of minimum braids and braid family representatives; 1.15 More KL invariants; 1.16 Borromean links; 2. Recognition and Generation of Knots and Links; 2.1 Recognition of KLs; 2.1.1 Group of KL; 2.2 Polynomial invariants; 2.3 Vassiliev invariants; 2.4 Experimenting with KLs; 2.5 Derivation and classification of KLs; 2.6 Basic polyhedra and polyhedral KLs; 2.7 Basic polyhedra and non-algebraic tangles; 2.7.1 Generalized tangles; 2.7.2 n-tangles and basic polyhedra 2.7.3 Non-algebraic tangle compositions and component algebra2.8 KL tables; 2.8.1 Non-alternating and almost alternating KLs; 2.9 Projections of KLs and chirality; 2.10 Families of undetectable KLs;

2.10.1 Detecting chirality of KLs by polynomial invariants; 2.11 A dream- new KL tables; 3. History of Knot Theory and Applications of Knots and Links; 3.1 History of knot theory; 3.2 Mirror curves; 3.2.1 Tamil treshold designs; 3.2.2 Tchokwe sand drawings; 3.2.3 Construction of mirror curves; 3.2.4 Enumeration of mirror curves; 3.2.5 Lunda designs; 3.2.6 Polyominoes
3.2.6.1 Lunda polyominoes and Lunda animals3.2.7 KLs and mirror curves; 3.2.8 Mirror curves on di erent surfaces; 3.2.9 Mirror curves in art; 3.2.10 KLs and self-avoiding curves; 3.3 KLs and fullerenes; 3.3.1 General fullerenes, graphs, symmetry and isomers; 3.3.2 5/6 fullerenes; 3.3.3 Knot theory and fullerenes; 3.3.4 Nanotubes, conical and biconical fullerenes and their symmetry; 3.3.5 Fullerenes on other surfaces; 3.4 KLs and logic; 3.5 Waveforms; 3.6 Knot automata; Bibliography; Index

Sommario/riassunto

LinKnot - Knot Theory by Computer provides a unique view of selected topics in knot theory suitable for students, research mathematicians, and readers with backgrounds in other exact sciences, including chemistry, molecular biology and physics. The book covers basic notions in knot theory, as well as new methods for handling open problems such as unknotting number, braid family representatives, invertibility, amphicheirality, undetectability, non-algebraic tangles, polyhedral links, and (2,2)-moves. Hands-on computations using Mathematica or the webMathematica package <