

Contents

Part I Algebraic Modeling of Topological Structures

1	Link Invariants from the Yokonuma–Hecke Algebras	3
	Konstantinos Karvounis and Sofia Lambropoulou	
2	A Survey on Temperley–Lieb-type Quotients from the Yokonuma–Hecke Algebras	37
	Dimos Goundaroulis	
3	Representation Theory of Framisations of Knot Algebras	57
	Maria Chlouveraki	
4	Invariants for Links from Classical and Affine Yokonuma–Hecke Algebras	77
	Loïc Poulain d’Andecy	
5	On the Framization of the Hecke Algebra of Type \mathbf{B}	97
	Marcelo Flores	
6	Link Diagrams in Seifert Manifolds and Applications to Skein Modules	117
	Boštjan Gabrovšek and Maciej Mroczkowski	
7	The Braid Approach to the HOMFLYPT Skein Module of the Lens Spaces $L(p, 1)$	143
	Ioannis Diamantis and Sofia Lambropoulou	
8	Some Hecke-Type Algebras Derived from the Braid Group with Two Fixed Strands	177
	Dimitrios Kodokostas and Sofia Lambropoulou	
9	Braid Groups in Handlebodies and Corresponding Hecke Algebras	189
	Valeriy G. Bardakov	

10	Infinite Loop Spaces, Dyer–Lashof Algebra, Cohomology of the Infinite Symmetric Group and Modular Invariants	205
	Nondas E. Kechagias	

Part II Algebraic Modeling of Applications

11	Linking in Systems with One-Dimensional Periodic Boundaries	237
	Kenneth C. Millett and Eleni Panagiotou	
12	On the Height of Knotoids	259
	Neslihan Gügümcü and Louis H. Kauffman	
13	Fourier Braids	283
	Stephan Klaus	
14	Molecular Simulation of Ionic Liquids: Complex Dynamics and Structure	297
	Niki Vergadou	
15	Topological Surgery in Nature	313
	Stathis Antoniou and Sofia Lambropoulou	

Part III Algebraic Modeling of Computational Structures

16	Automorphisms of Curves	339
	Jannis A. Antoniadis and Aristides Kontogeorgis	
17	Building and Integrating Semantic Theories over Institutions	363
	Nicola Angius, Maria Dimarogkona and Petros Stefaneas	
18	Generic Constructions and Generic Limits	375
	Sergey V. Sudoplatov, Yiannis Kiouvrekis and Petros Stefaneas	
19	On Combining Algebraic Specifications with First-Order Logic via Athena	399
	Katerina Ksystra, Nikos Triantafyllou and Petros Stefaneas	
20	A Rule-Based Approach for Air Traffic Control in the Vicinity of the Airport	423
	Theodoros Mitsikas, Petros Stefaneas and Iakovos Ouranos	
21	Sequential Machines and Affine Musical Contours	439
	Marianthi Bozapalidou	

**22 A Formal Representation of Video Content
with the Picture Hyperoperation 447**
Antonios Kalampakas, Nikolaos Triantafyllou, Katerina Ksystra
and Petros Stefaneas

**23 Novel Approaches to Medical Information Processing
and Analysis 453**
Evi Karali

Algebraic Modeling of Topological and Computational
Structures and Applications

THALES, Athens, Greece, July 1-3, 2015

Lambropoulou, S.; Theodorou, D.; Stefaneas, P.;
Kauffman, L. (Eds.)

2017, XV, 482 p. 151 illus., 61 illus. in color., Hardcover

ISBN: 978-3-319-68102-3