

## Contents

Preface	v
List of Participants	vii
Mathematical Formulations of Atom Trap Quantum Gates Z. ZHANG and G. CHEN	1
Charge Renormalization, Apéry’s Number, and the Trefoil Knot H.E. BRANDT	23
Braid Group, Temperley–Lieb Algebra, and Quantum Information and Computation Y. ZHANG	49
Poisson Algebras and Yang-Baxter Equations T. SCHEDLER	91
Ambiguity in Quantum-theoretical Descriptions of Experiments J.M. MYERS and F.H. MADJID	107
Reference Frame Fields based on Quantum Theory Representations of Real and Complex Numbers P. BENIOFF	125
Two Paradigms for Topological Quantum Computation E.C. ROWELL	165
Contraction of Matchgate Tensor Networks on Non-planar Graphs S. BRAVYI	179
Probing Topological Order in Quantum Hall States Using Entanglement Calculations M. HAQUE	213
Topological Order and Entanglement A. HAMMA	219
Hierarchical Quantum Search V.E. KOREPIN and Y. XU	225