

## Table of Contents

### 0.1

Preface	
I. Introduction	1
II. Peirce's Logic of Relations	3
III. Time Symmetry, Advanced Potentials, and Needle Radiation	11
IV. Physical Preliminaries	13
V. Triadic Relations and Elementary Particles	
A. The Diagrammatic System	15
B. Quantum Correspondence	21
C. Internal Structure of Elementary Particles	30
D. Interactions and Continuity	34
VI. A Triadic Quantum Computer	34
VII. Concluding Remarks	
A. Summary	45
B. Determinism Versus Chance	45
C. Hidden Variables	46
D. Action at a Distance	46
E. Quantum Jumps and Collapse of the Wave Function	46
References	48

## Figures and Tables

### FIGURES

1. Peirce's graphical representations of elementary relational forms generalized on both subject and predicate aspects.	5
2. Peirce's general sign relation expressed in his graphical logic of relations.	9
3. Triadic history of a particle.	16
4. Triadic history of an antiparticle.	17
5. Triadic history of particle-antiparticle annihilation.	18
6. <b>PBK</b> diagram for interaction of an electron and a photon.	20
7. Quantum representation of an EP history.	23
8. Feynman diagram of lowest order for Compton scattering.	24
9. <b>PBK</b> diagram for annihilation of an electron and a positron.	25
10. <b>PBK</b> diagram for the repulsive Coulomb interaction (M øller scattering).	26
11. <b>PBK</b> diagram for the attractive Coulomb interaction (hydrogen atom).	28
12. <b>PBK</b> diagram for emission of radiation from a hydrogen atom.	29
13. Simplified <b>PBK</b> diagram for electron-photon interaction First transistor configuration.	38
14. <b>PBK</b> diagram for photon annihilation. Second transistor configuration.	38
15. <b>PBK</b> diagram for creation of entangled photon pair. Third transistor configuration.	40
16. <b>PBK</b> diagram for electron-antiphoton interaction. Fourth transistor configuration.	40
17. Elementary logic circuit using transistors.	42

### TABLES

1. Peirce's generalization of the subject aspect of relations.	4
2. Elementary bonding patterns in Peirce's graphical relational logic.	6
3. Peirce's relational principles.	7
4. "Truth table" for logic circuit of Fig. 17. Two polarization state differences.	43
5. "Truth table" for logic circuit of Fig. 17. Three polarization state differences.	43