

Contents

Preface

vii

I. General introduction

1. Standpoint and purpose	1
2. Causality and geometry—historical	2
3. Conformality, groups, and particles—historical	5
4. Natural philosophy of chronogeometric cosmology	8
5. The universal cosmos—sketch	12
6. The chronometric redshift theory	14
7. Theoretical ramifications; the cosmic background radiation	19

II. Mathematical development

1. Causal orientations	22
2. Causality in groups	28
3. Causal morphisms of groups	34
4. Causality and conformality	37
5. Relation to Minkowski space	41
6. Observers and clocks	44
7. Local observers	48

v

III. Physical theory

1. The Cosmos	50
2. Postulational development	51
3. Physical observers	59
4. Conformal geometry and the unitary formalism	63
5. Causal symmetries and the energy	68
6. The redshift	75
7. Local Lorentz frames	82
8. Cosmic background radiation	85
9. Special relativity as a limiting case of unispacial theory	88

IV. Astronomical applications

1. Introduction	93
2. The redshift–magnitude relation	94
3. Further cosmological tests	98
4. The aperture correction for galaxies	104
5. Statistical effect of the selection of the brightest objects	108
6. The Peterson galaxies	109
7. Markarian galaxies and N-galaxies	114
8. The redshift–magnitude relation for nearby galaxies	117
9. The redshift–magnitude relation for Sandage’s brightest cluster galaxies	134
10. Preliminary discussion of quasars	140
11. The N - z relation for quasars	147
12. The apparent magnitude distribution for quasars	152
13. The redshift–luminosity relation for quasars	154
14. The redshift–number relation for quasar subsamples	158
15. The Schmidt V/V_m test for quasars in the chronometric theory	163
16. The angular diameter redshift relation for double radio sources	167
17. Observation versus theory for radio sources	168
18. The Setti–Woltjer quasar classes	170
19. Other observational considerations	174

V. Discussion

1. General conclusions	181
2. Theoretical aspects	187
3. Further observational work	194

References	197
-------------------	------------

<i>Index</i>	201
--------------	------------

