

CONTENTS

PREFACE	ix
PART 1: PLENARY LECTURES	1
Laser interferometric gravitational wave detectors K Danzmann	3
Gravitational lensing J Ehlers and P Schneider	21
Applications of numerical relativity: critical behavior and black-hole containing spacetimes C R Evans	41
Relativistic dissipative fluids R Geroch	59
The interpretation of quantum cosmological models J J Halliwell	63
The quantum mechanics of closed systems J B Hartle	81
On the mathematical theory of classical fields and general relativity S Klainerman	101
Canonical quantum gravity K V Kuchař	119
Recent results from COBE J C Mather, C L Bennett, N W Boggess, M G Hauser, G F Smoot and E L Wright	151
Gravity and quantum mechanics R Penrose	179
Sources of gravitational waves and their detectability B F Schutz	191
Computer calculations of collisions, black holes, and naked singularities S L Shapiro and S A Teukolsky	211

What can we learn from the study of non-perturbative quantum general relativity?	229
L Smolin	
Recent progress in the observations of compact objects and black holes	263
L Stella	
Testing relativistic gravity with binary and millisecond pulsars	287
J H Taylor	
Closed timelike curves	295
K S Thorne	
The present status of general relativity	317
R M Wald	
Large-scale structure	331
S D M White	
PART 2: WORKSHOP SUMMARIES	339
Exact solutions and their interpretation	341
G Neugebauer	
Complex methods/twistors/new Hamiltonian variables	347
C N Kozameh	
Mathematical studies of Einstein's and other relativistic equations/alternative gravity theories	353
R D Sorkin	
Asymptotia, singularities and global structure	359
C J S Clarke	
Approximation and perturbation methods	365
B R Iyer	
Numerical relativity	373
T Nakamura	
Computer methods in general relativity: algebraic computing	381
S M Christensen (Chairman)	
Relativistic astrophysics	387
R H Price	
Mathematical cosmology	393
G F R Ellis	
Early Universe phenomena	397
A Vilenkin	

Observational and astrophysical cosmology H Quintana	401
Gravitational wave experiments W O Hamilton and Ho Jung Paik	407
Report on the Workshop ‘Other gravitational experiments and observations’ B Bertotti	413
Quantum gravity No summary was received for this session	
Quantum cosmology No summary was received for this session	
Quantum field theory in curved space–time M Castagnino	419
LIST OF PARTICIPANTS	425
AUTHOR INDEX	437