



# An Introduction to Relativity

JAYANT V. NARLIKAR

# Contents

Preface	vii
1 The special theory of relativity	1
2 From the special to the general theory of relativity	34
3 Vectors and tensors	41
4 Covariant differentiation	59
5 Curvature of spacetime	70
6 Spacetime symmetries	85
7 Physics in curved spacetime	100
8 Einstein's equations	116
9 The Schwarzschild solution	126
10 Experimental tests of general relativity	143
11 Gravitational radiation	162
12 Relativistic astrophysics	176
13 Black holes	194
14 The expanding Universe	223
15 Friedmann models	245
16 The early Universe	275
17 Observational cosmology	306
18 Beyond relativity	334
References	353
Index	358