

Preface

A significant amount of relativistic literature has, in the past few decades, been devoted to the study of symmetries in general relativity. This book attempts to collect together the theoretical aspects of this work into something like a coherent whole. However, it should be stressed that it is not a textbook on those exact solutions of Einstein's equations which exhibit such symmetries; an excellent text covering these topics already exists in the literature. It is essentially a study of certain aspects of 4-dimensional Lorentzian differential geometry, but directed towards the special requirements of Einstein's general theory of relativity. Its main objective is to present a mathematical approach to symmetries and to the related topic of the connection and curvature structure of space-time and to pay attention to certain problems which arise and which worry mathematicians more than physicists. It is also hoped that certain of the chapters, for example those on manifold theory and holonomy groups, may serve as more or less self contained introductions to these important subjects.

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