
Preface

This book represents in the first place the desire of the authors of the various contributions to enter a discussion about the research landscape of present-day fundamental theoretical physics. It documents their attempt, out of their highly specialized scientific positions, to find a way of communicating about methods, achievements, and promises of the different approaches which shape the development of this field. It is therefore also an attempt to bring out the connections between these approaches, and present them not as disjoint ventures but rather as facets of a common quest for understanding.

Whether in competition to each other or in collaboration, the ‘many-fold ways’ of contemporary physics are characterized by a number of exciting findings (and questions) which appear more and more interrelated. Moreover, in the historical development of science, the steadily arriving new empirical information partly supports, partly contradicts the existing theories, and partly brings forth unexpected results forcing a total reorientation upon us. If we are lucky, the beginning of this century may prove to be as grand as that of the last one.

It is not an easy task in a situation so much in movement and in which various approaches strive for completion, to promote a constructive interaction between these and to achieve a level of mutual understanding on which such an interaction can be fruitful. Nearly all of the authors contributing to this book have been participating in a working group dedicated exactly to this task; this group met in many sessions over several years. This book is to a large extent the result of these discussions.

The support of the authors’ home institutions was of course important for this project, but one institution has to be singled out for making this book possible: this is FESt, Heidelberg (Forschungsstätte der Evangelischen Studiengemeinschaft – Protestant Institute for Interdisciplinary Research).

FESt has a long tradition in bringing together interdisciplinary working groups. In particular, it has cultivated the dialogue between the natural sciences, philosophy, theology, and the life sciences – but also projects inside one discipline which involve discussion across the specialized fields and aim

at a more general understanding of fundamental questions pertaining to this discipline. Our work has constituted a FESSt project belonging to this class.

The intention of working groups at FESSt typically is not only to present the differing perspectives but also to compare them and to find relations which could be fruitful for the fields involved. To achieve this goal, numerous group sessions are required and FESSt provides hereto a unique scientific and organizational environment. This has been extremely useful for our project and we are very grateful to FESSt for its support of our work as well as its continuous interest and confidence in it.

We appreciate very much the interest of Springer-Verlag in promoting the interdisciplinary exchange of information at the level of specialists. We thank Wolf Beiglböck for excellent advice and assistance in the completion of the book and the Springer team for dedicated editorial and publishing work.

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