

Preface

The SIGRAV (Italian Society of Relativity and Gravitation) Graduate School in Contemporary Relativity and Gravitational Physics has become a traditional meeting point in Italy for research in the field of general relativity and gravitational physics. The 2009 (VIIIth) edition of this School—Gravity: Where Do We Stand?—has been envisaged as an exploration path of gravitation, seen as a pervasive phenomenon acting at all scales, from the microscopic (the realm of a still-to-be-discovered satisfactory quantum theory of gravitation) to laboratory and Solar System experiments, up to astrophysical phenomena and cosmological scenarios. Each step of this path turns out to be full of insight, full of ideas, full of discoveries. This is not by chance for at least three reasons. First, as stated above, gravitation seems to play a major role in a whole range of important phenomena, from the build-up of spacetime itself (an oxymoron, we may say) to the formation and evolution of astrophysical structures, up to the very origin and evolution of the universe. Second, we have had, for almost a century, an amazing theory (general relativity) whose structure, and especially consequences, we are still exploring. Third, today we have at our disposal an ever-increasing amount of experimental data, from various techniques, and we can confidently speak about *precision tests*.

The School was attended by more than 50 students from all over the world and the lecturers, all outstanding scientists, were able to cover a substantial part of current research areas, from foundations to frontiers. The days of the School—also thanks to the beautiful venue of Villa Olmo, on Lake Como—have been nice and relaxed. As is customary for the school, after the end of this edition we started working on the preparation of the related book. This took a considerable amount of time, also due to new chapters which we have added to meet the suggestions by the book referees (whom we thank for their advice). All contributions were fully updated to the time the book went to print and we are finally able to offer the text to the attention of the reader.

This is also the place to remember two persons who are not among us anymore. Stefano Braccini has been a passionate and competent lecturer, and as such contributed to the success of the School. The news of his untimely passing filled us with

dismay. Angioletta Coradini, at that time Director of Istituto di Fisica dello Spazio Interplanetario (IFSI-INAF), was a passionate supporter of the School. All of us miss such a great person, as well as a first-class scientist. On paper ... The reader can find a remembrance of them by Francesco Fidecaro and Priscilla Cerroni.

The school was made possible thanks to the support of SIGRAV, the University of Insubria, the Department of Physics and Mathematics of the Insubria University, the National Institute of Nuclear Physics (INFN) and Galileian Plus S.r.l. (for which we warmly thank Massimiliano Chersich). We are grateful to the secretarial conference staff of the Center Alessandro Volta, in particular to Chiara Stefanetti and Francesca Gamba for their assistance, precious help and kindness.

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