

Preface

The international conference "The Modern Physics of Compact Stars and Relativistic Gravity" took place in Yerevan, Armenia, from 18–21 September 2013. This was the second in a series of conferences which aim to bring together people working in astrophysics of compact stars, physics of dense matter, gravitation and cosmology, observations of pulsars and binary neutron stars and related fields. The conference was held on the occasion of 100th birthday of the founder of the Theoretical Physics Chair at the Department of Physics of Yerevan State University and prominent Armenian scientist Academician Gurgen S Sahakyan.

The field of compact stars has seen extraordinary development since the discovery of pulsars in 1967. Even before this discovery, pioneering work of a number of theoretical groups had laid the foundation for this development. A pioneer of this effort was Professor G S Sahakyan who, together with Professor Victor Ambartsumyan and a group of young scientists, started in the early sixties their fundamental work on the properties of superdense matter and on the relativistic structure of compact stellar objects. This conference explored the vast diversity of the manifestations of compact stars, including the modern aspects of the equation of state of superdense matter, its magnetic and thermal properties, rotational dynamics, superfluidity and superconductivity, phase transition from hadronic to quark matter, etc. The articles on these subjects collected in this volume are evidence of liveliness of the field and of the continuous feedback between theory and the experiment. A part of this volume is devoted to the cosmology and the theories of gravity — the subfields of astrophysics that are of fundamental importance to our understanding of the universe. The reader will find here articles touching on the most diverse aspects of these fields such as modern problems in Einstein's classical theory of gravity and its alternatives, string theory motivated cosmological models, theories of cosmic microwave background, quantum field theory in curved background, Casimir effect, etc. Thus, it is fair to say that the present volume covers a large number of actively pursued subjects of modern relativistic astrophysics.

We would like to thank all those individuals and organizations that helped us in organizing a successful conference. These include the members of the international advisory committee as well as the local organizing committee (whose names are listed separately above) and the sponsors of the conference — the Volkswagen Stiftung (Hannover, Germany), the HIC for FAIR Institute (Frankfurt am Main, Germany) and the State Committee for Sciences of Armenia.

*Edvard Chubaryan, Aram Saharian and Armen Sedrakian
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