

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 Guren 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
Yerevan / Frankfurt-Main, 1 February, 2014*





List of participants

Ahmad Raji, Amid	Islamic Azad University of Tehran
Alaverdyan, Grigor	Yerevan State University
Alvarez-Castillo, David E	JINR, Dubna
Baiko, Denis	A F Ioffe Physical Technical Institute
Barsukov, Dmitriy	A F Ioffe Physical Technical Institute
Blaschke, David	University of Wroclaw
Brillante, Alessandro	Goethe University, Frankfurt
Campos, Miguel	Roraima Federal University
Colucci, Giuseppe	Goethe University, Frankfurt
Darehmoradi, Mohammad	TSML, Teheran
Dieperink, Lex	KVI, Groningen
Evnin, Oleg	Chulalongkorn University
Evslin, Jarah Markar	IHEP, Chinese Academy of Sciences
Gevorkyan, Ashot	Institute for Informatics and Automation Problems NAS of Armenia
Goglichidze, Oleg	A F Ioffe Physical Technical Institute
Grigorian, Hovik	Yerevan State University
Grigoryan, Hovhannes	New York University
Grigoryan, Levon	Institute of Applied Problems in Physics
Hajyan, Gevorg	Yerevan State University
Hambaryan, Valeri	AIU, University Jena
Harutyunyan, Gohar	Yerevan State University
Hayrapetyan, Mekhak	Yerevan State University
Katanaev, Mikhail	Steklov Mathematical Institute
Khudaverdian, Hovhannes	University of Manchester
Kluzniak, Wlodek	Copernicus Astronomical Center
Kotanjyan, Anna	Yerevan State University
Margaryan, Amur	Alikhanyan National Science Laboratory
Mekhitarian, Vahram	Institute for Physical Research, National Academy of Science of Armenia
Mkrtychyan, Karapet	Scuola Normale Superiore, Pisa
Pienkos, Monika	University of Silesia
Piloyan, Arpine	Yerevan State University
Pogosian, Levon	Simon Fraser University
Rezzolla, Luciano	Goethe University, Frankfurt
Rischke, Dirk	Goethe University, Frankfurt
Roepke, Gerd	Institut fuer Physik, Uni Rostock
Saharian, Aram	Yerevan State University
Sargsian, Misak	Florida International University
Sedrakian, Armen	Goethe University, Frankfurt
Sedrakian, David	Yerevan State University
Shahabasyan, Karen	Yerevan State University
Sinha, Monika	Goethe University, Frankfurt
Stein, Martin	Goethe University, Frankfurt
Van Eysden, Anthony	NORDITA
Vartanyan, Yuri	Yerevan State University