

PREFACE

This volume contains papers based on communications presented at the *Third International Workshop on Astronomy and Relativistic Astrophysics* held at João Pessoa (Brazil) from October 3 to 6, 2007. The International Workshop on Astronomy and Relativistic Astrophysics has been organized since 2003 (the first edition of the event was held in Olinda (Brazil)). In this year, astrophysicists, astronomers and scientists working in nuclear and high-energy particle physics, met for the first time with the intention of showing their latest results on a variety of topics involving new phenomena and new states of matter in the universe. The second and third editions were held in Natal (Brazil), 2005 and João Pessoa (Brazil), 2007.

New Phenomena and New States of Matter in the Universe has been the central subject of this event in the first three editions. Contributions in the realm of General Relativity, Gravitation, Cosmology, Heavy Ion Collisions and the Quark-Gluon Plasma, White Dwarfs, Neutron Stars and Pulsars, Black Holes, Gamma Ray Bursts, High-Energy Cosmic Rays, Gravitational Waves, Dark Matter and Dark Energy, Strange Matter and Strange Stars, Antimatter and Ion Research and Cosmic Matter in the Laboratory, are included among the topics.

In the Proceedings the reader will find papers on different aspects of neutron stars, Friedmann cosmology, dark energy, quintessence model, nuclear matter, cosmic topology, aspects of quantum field theory in curved spacetimes and some related mathematical problems. As in the previous workshops, the Third International Workshop on Astronomy and Relativistic Astrophysics was marked by a friendly atmosphere, fruitful discussions and intensive change of ideas.

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