

FOREWORD

This volume gathers paper topics dedicated to the idea that the interplay between Physics and Mathematics yields a better understanding of Nature and creates a fruitful framework for the study of Universe.

The contributions included were selected among the presentations to the 8th Workshop on “Quantum Field Theory and Hamiltonian Systems”, September 19-22, 2012, held in Craiova, Romania. Organized by the Southeastern Europe Network in Mathematical and Theoretical Physics SEENET-MTP, this workshop edition benefited from the financial support of the UNESCO Venice Office in Italy.

All talks were intended to a large audience of specialists, but not only. The morning and afternoon sessions were followed by exercise meetings, especially conceived for master and Ph.D. students in Physics and Mathematics. The main subjects approached during this workshop include special aspects of:

- Quantum Field Theory, Supersymmetry, String Theory, and General Relativity and Gravitation;
- Mathematical Aspects of Dynamical Systems;
- Non-linear Dynamics and Integrable Systems;
- New Phenomena at LHC and Physics beyond the Standard Model.

Apart from their main scientific preoccupations, the participants had the opportunity to exchange ideas on the future of Physics research, education, and funding during the complementary activities of the 4th meeting on “Science and Society”. They eventually converge at a unique point: mathematicians and physicists working in the field of Theoretical Physics portray to a great extent the idealistic scientist, designed for the previous century, but creating the next one.

Both organizers and editors express their sincere gratitude to all the invited contributors to these Proceedings for their cooperation in respect of time limitation, and accurate and patient preparation of their manuscripts in electronic form.

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