# P R E F A C E

Modern Mathematical Physics is an intersection and interplay of modern theoretical physics and contemporary mathematics. In this context Quantum Field Theory, String/M-theory and related topics play central roles. They present theoretical bases pointed towards an ultimate unified theory of elementary constituents of matter and fundamental forces.

This volume contains the proceedings of the international meeting **4th Summer School in Modern Mathematical Physics**, (see http://www.phy.bg.ac.yu/mphys4/), held 3 - 14 September 2006, Belgrade, Serbia. The proceedings contain lecture notes on an elementary introduction to supersymmetric field theory (I L. Buchbinder), reports on various recent developments and some short contributions. A major part of the programme was related to some recent developments in Quantum Field Theory and Supersymmetric Models. In particular, the following topics were presented: various aspects of noncommutative gauge theories, fuzzy spaces, deformations of spacetime symmetries, quantum groups, string field theory, supersymmetry, string and brane theories, gravity, cosmology, and some $p$-adic models. Only a few of the lectures, and other talks, are not presented in these proceedings. We hope that many papers presented here will be valuable literature not only for the participants of this school but also for many other PhD students and researchers in modern mathematical physics.

The previous three meetings in this series of summer schools in modern mathematical physics were held: in Sokobanja, Serbia, 13-25 August 2001; at Kopaonik, Serbia, 1-12 September 2002; and in Zlatibor, Serbia, 20-31 August 2004, respectively. The corresponding proceedings were published by the Institute of Physics, Belgrade.

This series of summer schools started as a part of Julius Wess initiative for the advancement of scientific contacts between Germany and other countries, which have emerged on the territory of former

Yugoslavia. In addition to the usual goals, the organizers supported as much as possible participation of the scientists from the region and tried to create a stimulative atmosphere for their scientific contacts, cooperation and friendship.

This meeting was held on the Danube river campus of the Institute of Physics in Belgrade. The one day excursion started sightseeing of Belgrade and then continued with a visit to Sremski Karlovci and the Fruška Gora national park. Sremski Karlovci is a small old town with historical and cultural monuments.

We wish to thank once again the lecturers and other speakers for their review talks and efforts to prepare their contributions for this volume. We thank all participants for their active participation in all activities, especially in the interesting and intriguing evening discussions. Financial support of the all sponsors, especially Ministry of Science and Environmental Protection, Serbia and ICTP (The Abdus Salam International Centre for Theoretical Physics), Italy, is greatly acknowledged by the Organizers. We are also grateful to the institutions and people who participated in the organization of this meeting.

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E d i t o r s

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