P R E F A C E

Since Newton's time, mathematical physics has been gradually developed in an interplay of theoretical physics and some corresponding areas of mathematics. Modern mathematical physics is a large scientific subject which involves almost all parts of mathematics relevant for contemporary theoretical physics. Quantum Field Theory and String/M-theory are very illustrative examples of this interplay and present basis for a unified theory of all kinds of matter and forces.

This volume contains the proceedings of the international meeting **3rd Summer School in Modern Mathematical Physics**, held in Zlatibor, Serbia, (Serbia and Montenegro) 20-31 August 2004 (see http://www.phy.bg.ac.yu/mphys3/). The proceedings consist of two parts: lectures and workshop reports, and short workshop talks. 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: conformal field theory, various aspects of noncommutative gauge theories, fuzzy spaces, deformations of spacetime symmetries, quantum groups, noncommutative quantum mechanics, string field theory, supersymmetry, string and brane theories, gravity, inflation cosmology and premetric classical electrodynamics. Only a few of lectures, and other talks, are not presented in these proceedings. We hope that lecture notes presented here will be valuable literature not only for the participants of this school but also for some other PhD students interested in the research in QFT and string theory.

The first and second meetings in this series of summer schools in modern mathematical physics were held in Sokobanja, Serbia (Yugoslavia), 13-25 August 2001 and at Kopaonik, Serbia (Yugoslavia), 1-12 September 2002, respectively. The corresponding proceedings were published by the Institute of Physics, Belgrade. This series of summer schools is a part of Julius Wess' WIGV initiative. WIGV (http://www.theorie.physik.uni-muenchen.de/~wgv/) is an 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 the stimulative atmosphere for their scientific contacts, cooperation and friendship.

Zlatibor is an attractive mountain and a pleasant tourist place. The meeting was held at the "Ratko Mitrovic" hotel, Student's Resting-House of the Belgrade University. During this summer school the participants took part in two excursions: Mokra Gora and Sirogojno. Journey by an old train through many tunnels along railway loop in the form of figure eight looked wonderful. Sirogojno is an ethnological Serbian museum under the open sky.

We wish to thank once again the lecturers and workshop 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: UNESCO Office in Venice - Regional Bureau for Science in Europe (ROSTE); DAAD (Deutscher Akademischer Austausch Dienst), Germany; DFG Schwerpunkt String Theory, Germany; Ministry of Science and Environmental Protection, Serbia; 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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