

Preface

The real world consists of composite systems. Quantum theory of composite systems is fundamental for almost all applications of quantum mechanics. The recently observed explosion of research on quantum information theory and quantum computer science has been the main motivation to devote the XXVI International School of Theoretical Physics to the problem of Quantum Composite Systems. It was held in Ustroń (Beskidy Mountains, Poland) from 3rd to 7th September 2002 and was organized by the Department of Theoretical Physics, Institute of Physics, University of Silesia, Katowice, Poland. Over 60 participants from Austria, Belgium, Finland, Germany, Great Britain, Israel, Slovakia, and Poland took part. The lectures covered the following topics: mathematics of quantum composite systems, Bell-type inequalities, correlations, entanglement, teleportation, copying quantum states, reduced dynamics, decoherence, quantum measurement theory, entropy and information in quantum composite systems, quantum composite systems as carriers of information processing, quantum composite systems in econophysics.

The organizers are grateful to those organizations which helped with financial support such as the Rector of the University of Silesia, Polish Ministry of National Education and Sport, Stiftung für Deutsch-Polnische Zusammenarbeit, State Committee for Scientific Research. We thank all our colleagues for their interesting lectures and all participants for stimulating atmosphere and discussions during the meeting.

We express our thanks to the editorial staff of the International Journal of Theoretical Physics, especially to Prof D. R. Finkelstein, for publishing a special issue devoted to our School.

During preparation of materials to this special issue, after a battle with cancer, Sławomir Bugajski passed away on 6 March 2003. We wish to dedicate this issue to his memory.

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