

Preface

The third edition of the conference “*Advanced many-body and statistical methods in mesoscopic systems*” took place in Bușteni, Romania, between September 4-8, 2017, continuing the tradition of the Constanța (2011) and Brașov (2014) meetings. This event brought together about fifty scientists from various countries, well-known experts working in the fields of nanophysics, many-body methods and theoretical modeling of nuclear systems.

The conference covered a wide range of topical research directions: foundations of quantum physics, equilibrium and non-equilibrium quantum statistics, fractional statistics, quantum transport, phase-transitions & superfluidity, superconductivity, quantum dissipation, spin systems and their dynamics, fundamental symmetries, phase transitions, exactly solvable methods, open quantum systems, clustering, decay and fission modes. A special section was devoted to quantum information, reflecting the growing importance of the field, with a lot of connections to nanoscale technologies. The latest developments in these overlapping branches, both theoretical and experimental, were addressed during the conference in Bușteni. One of the priorities of the conference was the interaction between experienced professors and young researchers, offering the M.Sc. and Ph.D. students the possibility to present their work and to discuss with their senior colleagues.

This conference proceedings volume brings together some of the invited and contributed talks of the conference. The editors believe that this will contain valuable reference material for applying many-body techniques to problems in mesoscopic physics. We thank all the participants for their contribution to the success of this conference. We are grateful for the financial and organizational support from IFIN-HH.

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