

The 5th International Symposium on Quantum Theory and Symmetries (QTS5)

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PREFACE**The 5th International Symposium on Quantum Theory and Symmetries (QTS5)**

This special issue of *Journal of Physics A: Mathematical and Theoretical* appears on the occasion of the 5th International Symposium on Quantum Theory and Symmetries (QTS5), held in Valladolid, Spain, from 22–28 July 2007. This is the fifth in a series of conferences previously held in Goslar (Germany) 1999, QTS1; Cracow (Poland) 2001, QTS2; Cincinnati (USA) 2003, QTS3; and Varna (Bulgaria) 2005, QTS4.

The QTS5 symposium gathered 181 participants from 39 countries working in different fields of theoretical physics. The spirit of the QTS conference series is to join researchers in a wide variety of topics in theoretical physics, as a way of making accessible recent results and the new lines of different fields. This is based on the feeling that it is good for a physicist to have a general overview as well as expertise in his/her own field. There are many other conferences devoted to specific topics, which are of interest to gain deeper insight in many technical aspects and that are quite suitable for discussions due to their small size. However, we believe that general conferences like this are interesting and worth keeping. We like the talks, in both plenary and parallel sessions, which are devoted to specific topics, to be prepared so as to be accessible to any researcher in any branch of theoretical physics. We think that this objective is compatible with rigour and high standards. As is well known, similar methods and techniques can be useful for many problems in different fields. We hope that this has been appreciated during the sessions of the QTS5 conference.

The QTS5 conference offered the following list of topics:

1. Symmetries in string theory, quantum gravity and related topics
2. Symmetries in quantum field theories, conformal and related field theories, lattice and noncommutative theories, gauge theories
3. Quantum computing, information and control
4. Foundations of quantum theory
5. Quantum optics, coherent states, Wigner functions
6. Dynamical and integrable systems
7. Symmetries in condensed matter and statistical physics
8. Symmetries in particle physics, nuclear, atomic and molecular physics
9. Nonlinear quantum mechanics
10. Time asymmetric quantum mechanics
11. SUSY quantum mechanics, PT symmetries and pseudo-Hamiltonians
12. Mathematical methods for symmetries and quantum theories
13. Symmetries in chemistry, biology and other sciences

Papers accepted for publication in this issue aim to provide a survey of the state of the art in different fields and contain contributions from plenary speakers. In addition, the issue contains contributions from other participants and it has also been open to other authors whose work fits into the topics of the conference. In any case, all the contributions have been refereed according to the high standards of *Journal of Physics A: Mathematical and Theoretical*.

We are much indebted to several institutions; without their support the organization of the QTS5 symposium would not have been possible. In this respect we acknowledge the Ministerio de Educación of Spain and Junta de Castilla y León for general financial support; to Fundación Universidades de Castilla y León for a number of grants to young researchers who otherwise would not have attended the conference; also to the European Physical Society that provided a number of grants for eastern countries, and to the University of Valladolid where the event took place.

We thank IOP Publishing and the staff of *Journal of Physics A: Mathematical and Theoretical* for the publication of this special issue.

In addition, we want to express our gratitude to other members of the Local Organizing Committee of QTS5, who are not Editors of this special issue: Oscar Arratia, Juan A Calzada and Fernando Gómez.

Finally, we would like to thank all the participants in the QTS5 conference for their presence, contributions, and for the good atmosphere achieved during their stay. We hope that the experience of spending these days in Valladolid has been most fruitful for all of them.

M Gadella¹, J M Izquierdo¹, S Kuru², J Negro¹ and M A del Olmo¹

Guest Editors

¹ Departamento de Física Teórica, Universidad de Valladolid, 47011 Valladolid, Spain

² Department of Physics, Faculty of Science, Ankara University, 06100 Ankara, Turkey