

# 8th Workshop on Quantum Chaos and Localisation Phenomena

Warsaw, Poland, May 19–21, 2017



*Editors of the Proceedings:*

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WARSAW

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POLISH ACADEMY OF SCIENCES  
INSTITUTE OF PHYSICS

**The Conference was organized by:**

Institute of Physics of the Polish Academy of Sciences,  
Center for Theoretical Physics of the Polish Academy of Sciences,  
Pro Physica Foundation

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**Objectives:**

To assess achievements and to formulate directions of new research  
on quantum chaos and localisation  
To bring together prominent experimental and theoretical physicists who share  
a common interest in quantum chaos and localisation phenomena

**Scope:**

Presentations will focus on the following topics:  
Quantum chaos and nonlinear classical systems  
Quantum and microwave billiards  
Quantum and microwave graphs  
Atoms in strong electromagnetic fields – experiment and theory  
Chaos vs. coherent effects in multiple scattering  
Anderson localisation  
Random lasers  
Quantum chaos and quantum computing  
Entanglement and noise

## Preface

The 8th Workshop on Quantum Chaos and Localisation Phenomena was held in Warsaw, Poland, from 19th to 21st of May, 2017 in the Institute of Physics of the Polish Academy of Sciences. The Workshop was organized by the Institute of Physics of the Polish Academy of Sciences, the Center for Theoretical Physics of the Polish Academy of Sciences and the Foundation “Pro Physica”. The first of these biennial workshops was organized in 2003. The selected articles of the invited lecturers, starting from the second Workshop, were published in *Acta Physica Polonica A* [1–6]. The main objectives of the Workshops are the assessment of achievements and the formulation of directions of a new research on quantum chaos and localisation phenomena.

The Workshop gathered about 40 participants from China, Czech Republic, France, Germany, Israel, Poland, Sweden, United Kingdom, and USA, representing experimental and theoretical physicists. Almost half of them were PhD students and postdocs. The lectures were also attended by not registered scientists and PhD students of the Institute of Physics and Center for Theoretical Physics. During the meeting 17 invited lectures and 4 posters were presented. The presentations were focused on the following topics: quantum chaos and non-linear classical systems, quantum and microwave graphs and billiards, atoms in strong electromagnetic fields, Anderson localisation, quantum chaos, quantum computing and physics of low dimensional systems. In the talks and poster presentations the theoretical and experimental problems from various fields of solid state, atomic and molecular, mathematical and statistical physics were discussed. It is worth to notice that this time majority of the lectures were devoted to dynamics of chaotic systems and many-body systems. The poster session as well as the coffee breaks and the conference dinner gave the opportunity for many interesting scientific discussions.

On behalf of the organizers we would like to express our gratitude to all speakers and the authors of the poster presentations for their contribution to the success of the Workshop.

We present the Proceedings of the 8th Workshop on Quantum Chaos and Localisation Phenomena in which 12 invited lectures are published.

Editors of the Proceedings,  
Leszek Sirko  
Szymon Bauch

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