Physikalisches Institut
Fakultät für Mathematik und Physik
Albert-Ludwigs Universität Freiburg

Physics School: Feb 23 – Mar 6, 2015

New trends in many-particle quantum transport

Recent experimental progress on quantum systems composed of identical particles opens novel perspectives for our understanding and control - both, in theory and experiment - of many-particle quantum dynamics beyond simple quantum statistical arguments. Apart from its foundational relevance for our understanding of the characteristic traits of systems of identical particles, this type of research raises challenging and innovative questions which directly relate to decoherence theory, quantum computation and simulation, quantum control, photonics, and the theory of complex quantum systems. Participants of the school will be provided with an intense lecture program on fundamental concepts and modern developments in experimental and theoretical many-particle quantum dynamics. A seminar program with active participation of the school's students will complement the lecture series, and ample space will be given for informal discussions.

Lecturers:

Andrea Alberti (Bonn) - "Towards many-particle experiments with neutral atoms''

Mark Fannes (Leuven) - *"Introduction to many particle quantum theory"*

Fabio Sciarrino (Roma) - "*Multiphoton interference experiments*"

Nicolas Treps (Paris) - "*Experiments on multimode interference and entanglement*"

Juan-Diego Urbina (Regensburg) - "Summing paths in Fock space: the semiclassical approach to many body interference"

Mattia Walschaers (Freiburg) - "*Multiparticle quantum transport theory*"

Place: Albert-Ludwigs-University Freiburg, Lecture Hall 1, Hermann-Herder-Str. 3

Please send your application by email to buchleitner_office@physik.uni-freiburg.de, not later than February 10, 2015. The participation fee of 100 EUR is to be paid upon arrival. A limited number of grants is available for BSc, MSc and PhD students

Scientific organizers: Alberto Rodriguez, Institute of Physics
Andreas Buchleitner, Institute of Physics & FRIAS
Contact: www.quantum.uni-freiburg.de

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