

**Workshop "Hilbert's Sixth Problem"  
University of Leicester, May 02-04, 2016**

The Workshop will take place from Morning 02/05/2016 to evening 04/05/2016  
in College Court, Leicester <http://collegecourt.co.uk/>

**Program**

**Monday May 2<sup>nd</sup>**

**9:00-9:25 Registration**

**9:25-9:35 Welcome**

**9:35-12:35 First Classical Session**

**9:35-10:05**

*Marshall Slemrod*, University of Wisconsin, Madison, USA

**Hilbert's 6th problem: what we can learn from analysis, computation, and experiment**

**10:05-10:35**

*Isabelle Gallagher*, Universite Paris-Diderot, Paris, France

**Derivation of some linear fluid equations from particle systems**

**10:35-11:05**

*Alexander Bobylev*, Keldysh Institute of Applied Mathematics, Russian Academy of Sciences, Moscow, Russia

**BE and hydrodynamics beyond Navier-Stokes**

**11:05-11:35 Coffee**

**11:35-12:05**

*Ilya Karlin*, ETH Zurich, Switzerland

**Exact and nonperturbative hydrodynamic limit for model kinetic equations**

**12:05-12:35**

*Stefano Olla*, Université Paris Dauphine, Paris, France

**Scaling space-time limits (hydrodynamic limits): from microscopic dynamics to thermodynamics**

**12:45-14:00 LUNCH**

**14:00-17:30 First Quantum Session**

**14:00-14:30**

*Masanao Ozawa*, Nagoya University, Japan

**Completion of von Neumann's axiomatization of quantum mechanics:  
From the repeatability hypothesis to quantum instruments**

**14:30-15:00**

*Shahn Majid*, School of Mathematical Sciences, Queen Mary, University of London, UK

**Self-duality in the axiomatic structure of physics**

**15:00-15:30 Coffee**

**15:30-16:00**

*Giacomo Mauro D'Ariano*, University of Pavia, Italy

**Informationalism as a solution of the Sixth Hilbert problem**

**16:00-16:30**

*Andrei Khrennikov*, Linnaeus University, Vaxjo-Kalmar, Sweden

**Hilbert's 6th problem. Information Biology version**

**16:30-17:00 Break**

**17:00-18:00 Special LMS-IMA Lecture**

*Leo Corry*, Tel-Aviv University, Israel

**The historical origins of Hilbert's sixth problem: geometry, mechanics,  
kinetic theory**

Tuesday May 3<sup>rd</sup>

9:00-10:30 Classical-2

9:00-9:30

*Pierre Degond*, Imperial College London, UK

Metric vs topological interactions in kinetic theory

9:30-10:00

*Yong Wang*, Institute of Applied Mathematics, Academy of Mathematics and Systems Science, Chinese Academy of Sci., Beijing, China

[Justification of diffusion limit for the Boltzmann Equation with a non-trivial profile](#)

10:00-10:30

*Irina F Potapenko*, Keldysh Institute of Applied mathematics, Russian Academy of Science Moscow, Russia

[Quasi steady-state distributions for the Landau-Fokker-Planck equation with energy/particle sources](#)

10:30-10:50 Coffee

10:50-12:50 Quantum-2

10:50-11:35 *Robin Hudson*, Loughborough University, UK

[A survey of quantum probability](#)

11:35-12:20

*Luigi Accardi*, University of Roma Torvergata, Italy

The quantum probability answer to Hilbert's Sixth Problem

12:20-12:50

*François Golse with Clement Mouhot and Thierry Paul*, CMLS, École polytechnique et CNRS, Université Paris-Saclay, Paris, France

[On the Mean-Field and Classical Limits of Quantum Mechanics](#)

12:50-14:00 LUNCH

**14:00-15:30 Classical-3**

**14:00-14:30**

*Katalin Hangos*, Computer and Automation Research institute, Hungarian Academy of Sciences, Budapest, Hungary

**Consistency and relationships between stochastic micro level and averaged macro level models in engineering**

**14:30-15:00**

*Hi Jun Choe*, Yonsei University, Seoul, South Korea

**Compressible Navier–Stokes limit of binary mixture of gas particles**

**15:00-15:50**

*Ivette Fuentes*, University of Vienna, Wien, Austria and University of Nottingham, UK

**Testing the effects of gravity and motion on quantum entanglement**

**15:30-16:00 Coffee**

**16:00-17:30 Probability and Complexity Session**

**16:00-16:30**

*Alexander Shen*, CNRS, Le Laboratoire d'Informatique, de Robotique et de Microelectronique de Montpellier (LIRMM), France

**Individual random objects in computer science and in 'real world'**

**16:30-17:00**

*Jonathan Ben-Artzi*, Imperial College London, UK

**Can we compute everything?**

**17:00-17:30**

*Paolo Rocchi*, LUISS University, Roma, Italy

**Philosophical pollution and the problem of the probability interpretation**

Wednesday May 4<sup>th</sup>

9:00-10:00 Quantum-3

9:30-10:00

*Teiji Kunihiro*, Kyoto University Sakyo-ku, Kyoto, Japan

Renormalization group method for the construction of the invariant manifold and its application to the resolution of Hilbert's sixth problem with quantum statistics

10:00-10:30

*Benjamin Schlein*, University of Zurich, Switzerland

Dynamics of weakly coupled particles in quantum mechanics

10:30-11:00 Coffee

11:00-12:50 Classical-4

11:00-11:30

*Kokou S E Dadzie*, Heriot-Watt University, Edinburgh, UK

The Boltzmann equation and Burnett regime continuum flow equations: on the interpretation of a 'probability distribution function' in kinetic theory of gases

11:30-12:00

*Yu Shih-Hsien*, National University of Singapore

Layers for Viscous Conservation Laws and Boltzmann Equation

12:00-12:20

*Sara Merino Aceituno*, Imperial College London, UK

Stochastic particle systems mean-field limit in wave turbulence

12:20-12:50

*Alexander Gorban*, University of Leicester, UK

Elusive slow manifolds and hydrodynamic limits without small parameter

12:50-14:00 LUNCH

14:00-15:30

**ROUND TABLE: The Sixth Problem in Classical and Quantum Worlds:  
What we do not know but should know? Open questions**

Have a smooth trip home!

