

Scientific Program

International Conference on

Quantum Physics and Nuclear Engineering

March 14-16, 2016 London, UK



UK: Conference Series llc LTD

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Scientific Program

Day 1

Monday March 14, 2016

08:30-09:00 Registrations

Guggenheim



09:00-09:25

Opening Ceremony

Keynote Forum

- 09:25-09:30 **Introduction**
- 09:30-10:00 **Yukio Tomozawa**
University of Michigan, USA
- 10:00-10:30 **Manijeh Razeghi**
Northwestern University, USA
- 10:30-11:00 **Kazuhisa Kakurai**
QuBS, JAEA & CEMS, RIKEN, Japan

Group Photo

Networking & Refreshments Break 11:00-11:20

Track 1: Quantum Science

Session Chair: Manijeh Razeghi, Northwestern University, USA

Session Co-chair: Ian O' Driscoll, Cork Institute of Technology and Tyndall National Institute, Ireland

Session Introduction

- 11:20-11:45 **Title: Evidence for a dark matter particle**
Yukio Tomozawa, University of Michigan, USA
- 11:45-12:10 **Title: Silicon photonics: generation of entangled photon pairs**
Labonté Laurent, University of Nice Sophia Antipolis, France
- 12:10-12:35 **Title: Gaussian quantum discord and the entangling power of a beamsplitter**
Natalia Korolkova, University of St. Andrews, UK
- 12:35-13:00 **Title: StarDriver: A highly flexible laser driver for inertial confinement fusion**
David Eimerl, EIMEX, USA

Networking & Lunch Break 13:00-13:45

- 13:45-14:10 **Title: Cavity-mediated collective heating in opaque sonoluminescing bubbles**
Almut Beige, University of Leeds, UK
- 14:10-14:35 **Title: High performance InAs-based type-II superlattice infrared photo-detectors**
Jianxin Chen, Chinese Academy of Sciences, China
- 14:35-15:00 **Title: Protocols for concentration of entanglement in multipartite quantum states**
Binayak S Choudhury, Indian Institute of Engineering Science and Technology, India
- 15:00-15:25 **Title: NV centers in diamond - quantum coherence, noise and nanoscale MRI**
Nir Bar-Gill, Hebrew University, Israel
- 15:25-15:50 **Title: Blue-green luminescence of Ce-doped ZnO thin films**
Manuel García-Méndez, CICFIM de la FCFM-UANL, México

Networking & Refreshments Break 15:50-16:10

Track 1: Quantum Science

Track 2: In Depth Quantum Mechanics

Session Chair: Yukio Tomozawa, University of Michigan, USA

Session Co-chair: Waseem Bakr, Princeton University, USA

- 16:10-16:35 **Title: Photo-induced topological phase transitions in ultracold fermions**
Norio Kawakami, Kyoto University, Japan

- 16:35-17:00 **Title: Ultrashort optical pulse generation in quantum dot lasers**
Ian O' Driscoll, Cork Institute of Technology and Tyndall National Institute, Ireland
- 17:00-17:25 **Title: Logical stochastic resonance with a coulomb-coupled quantum dot rectifier**
Fabian Hartmann, Universität Würzburg, Germany
- 17:25-17:50 **Title: Pair condensation in a spin-imbalanced two-dimensional Fermi gas**
Waseem Bakr, Princeton University, United States

Panel Discussion

Day 2

Tuesday March 15, 2016

Guggenheim

Track 3: Quantum States

Track 4: Quantum Mechanics Interpretation

Track 5: Strings in Quantum Physics

Session Chair: **Kazuhisa Kakurai**, QuBS, JAEA & CEMS, RIKEN, Japan

Session Co-chair: **Alexander Kubanek**, Ulm University, Germany

Session Introduction

- 09:30-09:55 **Title: Importance and applications of infinite dimensional non-orthogonal quantum state**
Osamu Hirota, Tamagawa University, Japan
- 09:55-10:20 **Title: Generation of non-classical states of light using photonic crystal fibres**
N Y Joly, University of Erlangen-Nürnberg, Germany
- 10:20-10:45 **Title: Fundamental phenomena of quantum mechanics studied in matter-wave optics: Quantum Cheshire-cat and uncertainty relations**
Yuji Hasegawa, TU-Wien Atominstitut der Österreichischen Universitäten, Austria

Networking & Refreshments Break 10:45-11:05

- 11:05-11:30 **Title: Neutron scattering investigations on quantum spin systems**
Kazuhisa Kakurai, QuBS, JAEA & CEMS, RIKEN, Japan
- 11:30-11:55 **Title: Towards an optimal quantum SWAP gate**
Colin Wilmott, Nottingham Trent University, UK
- 11:55-12:20 **Title: Nonlinear interferometer for shaping the spectrum of bright squeezed vacuum**
Maria Chekhova, Max-Planck Institute for the Science of Light, Germany
- 12:20-12:45 **Title: A consistent account of brain function reinterprets the evidence on which quantum mechanics is based**
Michael T Deans, Freelance Scientist, United Kingdom
- 12:45-13:10 **Title: Applications of induced coherence without induced emission**
Gabriela Barreto Lemos, Institut für Quantenoptik und Quanten information, Austria

Networking & Lunch Break 13:10-13:55

Track 9: Nuclear Science

Track 10: Interaction and Maintenance

Session Introduction

Session Chair: **Ekmel Ozbay**, Bilkent University, Turkey

Session Co-chair: **Colin Wilmott**, Nottingham Trent University, UK

- 13:55-14:20 **Title: Quantum Optics with color center in diamond**
Alexander Kubanek, Ulm University, Germany
- 14:20-14:45 **Title: Metamaterial based nanobiosensors and nanophotodetectors**
Ekmel Ozbay, Bilkent University, Turkey
- 14:45-15:10 **Title: Alignment of atomic inner shell vacancies-A detailed study**
Ajay Sharma, Chitkara University, India

Panel Discussion

Networking & Refreshments Break 15:10-15:30

Poster presentations 15:30-16:00

- QP101 **Title: High-power hybrid fiber amplifiers with pumping power recycling mechanism**
Shien-Kuei Liaw, National Taiwan University of Science and Technology, Taiwan
- QP102 **Title: Berry curvature in topologically non-trivial quantum systems**
Georgios Konstantinou, University of Cyprus, Cyprus
- QP103 **Title: Topological electric currents in nonadiabatic quantum systems**
Kyriakos Kyriakou, University of Cyprus, Cyprus
- QP104 **Title: Exploring the scaling of graphene for radiation detection**
Zachary Shollar, Purdue University, United States

Day 3

Wednesday March 16, 2016

Guggenheim

- Track 6: Quantum Physics Formulation
Track 7: Quantum Field Theory
Track 8: Quantum Transport and Dissipation
Track 11: Latest Technologies, Innovations and Instruments

Keynote Forum

- 09:30-10:00 **Shien-Kuei Liaw**
National Taiwan University of Science and Technology, Taiwan
- 10:00-10:30 **C Wei Xu**
Virtumanity, USA

Networking & Refreshments Break 10:30-10:50

Session Introduction

Session Chair: Shien-Kuei Liaw, National Taiwan University of Science and Technology, Taiwan
Session Co-chair: Yuji Hasegawa, TU-Wien Atominstut der Österreichischen Universitäten, Austria

- 10:50-11:15 **Title: Quantum and classical dynamics in hilbert spaces of states**
Alexey Kryukov, University of Wisconsin Colleges, USA
- 11:15-11:40 **Title: Optical signatures of states bound to vacancy defects in monolayer transition metal dichalcogenides**
Michael Leuenberger, University of Central Florida, USA
- 11:40-12:05 **Title: Plasmonic response of partially gated field effect transistors**
G Rupper, Army Research Laboratory, USA
- 12:05-12:30 **Title: On coupled wave scattering of structures involving flexible boundaries**
Rab Nawaz, COMSATS Institute of Information Technology Islamabad, Pakistan
- 12:30-12:55 **Title: Unified theory for all physics and beyond**
C Wei Xu, Verizon Communications, USA

Panel Discussion

Networking & Lunch Break 12:55-13:30

Closing Ceremony