
LPHYS'23. PROGRAM:

Seminar 1: Modern Trends in Laser Physics

Co-chairs:



Olga Kocharovskaya

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*All time slots in this schedule indicate the **UTC (GMT+00)**. Please adjust the schedule to your timezone.*

Monday, 3 July, 2023

SI.1 (12:00 – 13:30) Chair: Susanne Yelin (USA)

- 12:00 – 12:25 [F Nori](#) (Physics, University of Michigan, Ann Arbor MI, USA; Quantum Computing Center, RIKEN, Wako, Japan)
Classification and Reconstruction of Optical Quantum States with Deep Neural Networks (invited talk) [Abstract](#)
- 12:25 – 12:50 [T Pfeifer](#) (Quantum Dynamics and Control, Max-Planck-Institut für Kernphysik, Heidelberg, Germany)
Exotic Cases of Few- and Multi-Photon Physics in Atoms: From Extremely Low Intensity, State-Selective Pathways, to Applications in Quantum Machine Learning (invited talk) [Abstract](#)
- 12:50 – 13:10 [J Spall](#), [X Guo](#), [A Lvovsky](#) (Department of Physics, University of Oxford, Oxford, UK)
Optical Backpropagation: Training Neural Networks with Light (invited talk) [Abstract](#)
- 13:10 – 13:30 [S Varró](#) (Wigner Research Centre for Physics, ELI-ALPS, ELI-HU Ltd, Budapest, Szeged, Hungary)
Zernike Polynomials on Quantum Phase Space: Aberrations of Generation Probabilities of Entangled Photon Pairs (invited talk) [Abstract](#)

SI.2 (16:00 – 17:30) Chair: Olga Kocharovskaya (USA)

- 16:00 – 16:25 [M Lukin](#) (Department of Physics, Harvard University, Cambridge MA, USA)
Exploring New Frontiers of Quantum Science Using Programmable Atom Arrays (invited talk) [Abstract](#)
- 16:25 – 16:45 [H Bernien](#) (Pritzker School of Molecular Engineering, University of Chicago, Chicago, USA)
Building Quantum Processors and Quantum Networks Atom-By-Atom (invited talk) [Abstract](#)
- 16:45 – 17:05 [C Kokail](#) (Institute for Theoretical Physics, University of Innsbruck, Innsbruck, Austria; IQOQI, Innsbruck, Austria), [M J Joshi](#) (Institute for Experimental Physics, University of Innsbruck, Innsbruck, Austria; IQOQI, Innsbruck, Austria), [R van Bijnen](#) (Institute for Theoretical Physics, University of Innsbruck, Innsbruck, Austria), [F Kranzl](#) (Institute for Experimental Physics, University of Innsbruck, Innsbruck, Austria; IQOQI, Innsbruck, Austria), [T V Zache](#) (Institute for Theoretical Physics, University of Innsbruck, Innsbruck, Austria; IQOQI, Innsbruck, Austria), [R Blatt](#), [C F Roos](#) (Institute for Experimental Physics, University of Innsbruck, Innsbruck, Austria; IQOQI, Innsbruck, Austria), [P Zoller](#) (Institute for Theoretical Physics, University of Innsbruck, Innsbruck, Austria; IQOQI, Innsbruck, Austria)
Exploring Large-Scale Entanglement in Quantum Simulation (invited talk) [Abstract](#)
- 17:05 – 17:30 [S Kolkowitz](#) (Department of Physics, University of California, Berkeley CA, USA; Department of Physics, University of Wisconsin, Madison WI, USA)
Enhancing Optical Clock Performance with Multiple Atomic Ensembles (invited talk) [Abstract](#)

SI.3 (18:00 – 19:30) Chair: Girish Agarwal (USA)

- 18:00 – 18:20 [N Kalinin](#) (Emeritus Group Leuchs, Max Planck Institute for the Science of Light, Erlangen, Germany; Nonlinear dynamics and optics division, IAP RAS, Nizhny Novgorod, Russia; Department of Physics, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany), [T Dirmeier](#) (Emeritus Group Leuchs, Max Planck Institute for the Science of Light, Erlangen, Germany; Department of Physics, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany), [A Sorokin](#) (Nonlinear dynamics and optics division, IAP RAS, Nizhny Novgorod, Russia), [E A Anashkina](#) (Advanced School of General and Applied Physics, Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod, Russia; Nonlinear dynamics and optics division, IAP RAS, Nizhny Novgorod, Russia), [L L Sánchez-Soto](#) (Emeritus Group

- Leuchs, Max Planck Institute for the Science of Light, Erlangen, Germany; Departamento de Óptica, Facultad de Física, Universidad Complutense, Madrid, Spain), J F Corney (School of Mathematics and Physics, University of Queensland, Brisbane, Australia), [G Leuchs](#) (Max Planck Institute for the Science of Light, Erlangen, Germany; Nexus for Quantum Technologies, University of Ottawa, Ottawa, Canada; Department of Physics, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany), A V Andrianov (Nonlinear dynamics and optics division, IAP RAS, Nizhny Novgorod, Russia)
Squeezing by Nonlinear Amplitude-Dependent Phase Shift and How to Make Use of It (invited talk) [Abstract](#)
- 18:20 – 18:40 [D O Akat'ev](#), [D A Turaykhanov](#) (Kazan Scientific Center of RAS, Kazan, Russia), [N M Shafeev](#), [A V Vasiliev](#), [F M Ablayev](#) (Kazan Federal University, Kazan, Russia), [A A Kalachev](#) (Kazan Scientific Center of RAS, Kazan, Russia)
Quantum Hashing Via Single Photons (invited talk) [Abstract](#)
- 18:40 – 19:00 [L Davidovich](#) (Department of Physics and Astronomy, Texas A&M University, College Station TX, USA; Institute of Physics, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil), [R L de Matos Filho](#) (Institute of Physics, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil)
Quantum Metrology of Pauli Channels (invited talk) [Abstract](#)
- 19:00 – 19:20 [M S Zubairy](#) (Department of Physics and Astronomy, Texas A&M University, College Station, TX, USA; Institute for Quantum Science and Engineering, Texas A&M University, College Station, TX, USA)
Waveguide Cavity with Atomic Mirrors and Applications (invited talk) [Abstract](#)
- 19:20 – 19:40 [D V Seletskiy](#), [P Cusson](#), [S Virally](#) (Engineering Physics, Polytechnique Montréal, Montréal, Canada)
Nonclassical Pulses for Subcycle Quantum Optics (invited talk) [Abstract](#)

Tuesday, 4 July, 2023

SI.4 (12:00 – 13:30) Chairs: [Aleksei Taichenachev](#) (Russia) and [Denis Brazhnikov](#) (Russia)

- 12:00 – 12:20 [D W Wang](#) (Department of physics, Zhejiang University, Hangzhou, China)
Quantum Induced Coherence Light Detection and Ranging (invited talk) [Abstract](#)
- 12:20 – 12:40 [M Takamoto](#) (Cluster of Pioneering Research, RIKEN, Saitama, Japan; RIKEN Center for Advanced Photonics, RIKEN, Saitama, Japan), [I Ushijima](#) (RIKEN Center for Advanced Photonics, RIKEN, Saitama, Japan; Department of Applied Physics, the University of Tokyo, Tokyo, Japan), [H Katori](#) (Cluster of Pioneering Research, RIKEN, Saitama, Japan; RIKEN Center for Advanced Photonics, RIKEN, Saitama, Japan; Department of Applied Physics, the University of Tokyo, Tokyo, Japan)
Development of a Transportable Optical Lattice Clock and Its Applications (invited talk) [Abstract](#)
- 12:40 – 13:00 [Y Huang](#), [H Guan](#), [K Gao](#) (State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences, Wuhan, China; Key Laboratory of Atomic Frequency Standards, Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences, Wuhan, China)
Progress on 40Ca^+ Optical Clock (invited talk) [Abstract](#)
- 13:00 – 13:20 [D V Brazhnikov](#) (Physics Department, Novosibirsk State University, Novosibirsk, Russia; Institute of Laser Physics SB RAS, Novosibirsk, Russia), [S M Ignatovich](#), [V I Vishnyakov](#), [M N Skvortsov](#) (Institute of Laser Physics SB RAS, Novosibirsk, Russia)
New Approaches to Light Shift Suppression in Microwave Atomic Clocks Based on CW Coherent-Population-Trapping Resonances (invited talk) [Abstract](#)
- 13:20 – 13:40 [A V Taichenachev](#) (Physics Department, Novosibirsk State University, Novosibirsk, Russia; Institute of Laser Physics SB RAS, Novosibirsk, Russia), [V I Yudin](#) (Physics Department, Novosibirsk State University, Novosibirsk, Russia; Physical Engineering, Novosibirsk State Technical University, Novosibirsk, Russia; Institute of Laser Physics SB RAS, Novosibirsk, Russia)
Generalized Ramsey Methods in Precision Laser Spectroscopy: from Atomic Clocks to Interferometers (invited talk) [Abstract](#)

SI.5 (16:00 – 17:30) Chair: [Adam Kaufman](#) (USA)

- 16:00 – 16:20 [R Folman](#), Atom Chip Group (Ben-Gurion University of the Negev, Be'er Sheva, Israel)
Realization of a Complete Stern-Gerlach Interferometer: Towards a Test of Quantum Gravity (invited talk) [Abstract](#)
- 16:20 – 16:40 [B M Garraway](#) (Physics and Astronomy, University of Sussex, Brighton, UK)
Bubbles and Rings of Cold Quantum Gas: Dressed-Atom Approach (invited talk) [Abstract](#)
- 16:40 – 17:00 [J Li](#), [G R M da Silva](#) (Physics and Astronomy, Northwestern University, Evanston IL, USA), [S Kain](#) (Physics and Astronomy, Northwestern University, Evanston IL, USA), [J Bonacum](#) (ECE, Northwestern University, Evanston IL, USA), [D D Smith](#) (MSFC, NASA, Huntsville, AL, USA), [T Kovachy](#) (Physics and Astronomy, Northwestern University, Evanston IL, USA), [S M Shahriar](#) (ECE and Physics, Northwestern University, Evanston IL, USA)
Spin-Squeezed Large Momentum Transfer Dual-Species Atom Interferometric Accelerometer for Precision Test of the Equivalence Principle (invited talk) [Abstract](#)
- 17:00 – 17:20 [A Kaufman](#) (JILA, University of Colorado, Boulder CO, USA)
Microscopically-Controlled Arrays of Alkaline-Earth Atoms (invited talk) [Abstract](#)

- 17:20 – 17:40 V V Kocharovsky (Department of Physics and Astronomy, Texas A&M University, College Station, TX, USA)
Universal Nature of Quantum Supremacy (invited talk) [Abstract](#)
- SI.6 (18:00 – 19:30) Chair:** José R. Crespo López-Urrutia (Germany)
- 18:00 – 18:20 J R Crespo López-Urrutia (Quantum Dynamics and Control, Max-Planck-Institut für Kernphysik, Heidelberg, Germany)
Highly Charged Ion Clocks for the Extreme Ultraviolet Region, and Beyond (invited talk) [Abstract](#)
- 18:20 – 18:35 M Kopp, V Fragkos (Department of Physics, Stockholm University, Stockholm, Sweden), I Pikovski (Department of Physics, Stockholm University, Stockholm, Sweden; Department of Physics, Stevens Institute of Technology, Hoboken, USA)
Squeezing of Dark Matter (invited talk) [Abstract](#)
- 18:35 – 19:00 L Hollberg, T Na Narong (Department of Physics, Stanford University, Stanford CA, USA), H Li (Electrical Engineering, Stanford University, Stanford CA, USA), J Tong (Department of Physics, Stanford University, Stanford CA, USA)
Quantum Imaging of Magnetic Field Contours with Yb Atoms (invited talk) [Abstract](#)
- 19:00 – 19:20 A Geraci (Physics and Astronomy, Northwestern University, Evanston IL, USA)
Ultra-Sensitive Force Measurements and Searches for New Physics with Laser-Trapped Dielectric Particles (invited talk) [Abstract](#)
- 19:20 – 19:40 A R H Smith (Physics, Saint Anselm College, Geffstown, NH, USA; Physics and Astronomy, Dartmouth College, Hanover, NH, USA)
Quantum Time Dilation: A New Test of Relativistic Quantum Physics (invited talk) [Abstract](#)

Wednesday, 5 July, 2023

- SI.7 (12:00 – 13:30) Chair:** Ralf Röhlsberger (Germany)
- 12:00 – 12:20 E Shahmoon (Department of Chemical and Biological Physics, Weizmann Institute of Science, Rehovot, Israel)
Universal Approach for Quantum Interfaces with Atomic Arrays (invited talk) [Abstract](#)
- 12:20 – 12:40 V V Kocharovsky (Plasma Physics and High-Power Electronics Division, Institute of Applied Physics of the Russian Academy of Sciences, Nizhny Novgorod, Russia), E R Kocharovskaya (Nonlinear Dynamics and Optics Division, Institute of Applied Physics of the Russian Academy of Sciences, Nizhny Novgorod, Russia)
Steady-State Strongly Asymmetric Superradiant Lasing in a Slightly Asymmetric Fabry-Pérot Cavity: Analytical Solution (invited talk) [Abstract](#)
- 12:40 – 13:00 W-T Liao (Physics, National Central University, Taoyuan, Taiwan)
Gravitationally Sensitive Structured X-Ray Optics Using Nuclear Resonances (invited talk) [Abstract](#)
- 13:00 – 13:15 Y V Radeonychev, I R Khairulin (Nonlinear dynamics and optics division, Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russia)
On-Demand Shaping of Mössbauer Gamma-Ray Photons Via Transient Doppler Modulation of the Nuclear Resonant Transition Energy (invited talk) [Abstract](#)
- 13:15 – 13:35 P Andrejić (Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany), L M Lohse (DESY, Hamburg, Germany; University of Göttingen, Göttingen, Germany), A Pálffy (University of Würzburg, Würzburg, Germany)
Waveguide QED with Mössbauer Nuclei (invited talk) [Abstract](#)
- SI.8 (16:00 – 17:30) Chair:** Peter Thirolf (Germany)
- 16:00 – 16:20 O Kocharovskaya (Department of Physics and Astronomy, Texas A&M University, College Station, TX, USA)
Resonant Excitation of ⁴⁵Sc Nuclear Isomer Transition: Prospects for Nuclear Clock and Other Applications (invited talk) [Abstract](#)
- 16:20 – 16:40 R Röhlsberger (Photon Science, DESY, Hamburg, Germany; Institute of Optics and Quantum Electronics, Friedrich-Schiller-Universität Jena, Jena, Germany; X-ray Science, Helmholtz Institut Jena, Jena, Germany)
New Regimes of Nuclear Resonance Excitation and Detection with XFELs (invited talk) [Abstract](#)
- 16:40 – 17:00 J Evers (Theoretical Quantum Dynamics and Quantum Electrodynamics, Max Planck Institute for Nuclear Physics (MPIK), Heidelberg, Germany)
Nuclear Quantum Optics Beyond the Linear Regime - Recent Progress in Theory and Experiment (invited talk) [Abstract](#)
- 17:00 – 17:20 J von Zanthier, S Richter (Department of Physics, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany), S Wolf, F Schmidt-Kaler (Institut für Physik, Johannes Gutenberg-Universität Mainz, Mainz, Germany)
Collective Photon Emission of Correlated Atoms in Free Space (invited talk) [Abstract](#)
- 17:20 – 17:35 S Velten, L Bocklage (DESY, Hamburg, Germany; The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany), X Zhang (Department of Physics and Astronomy, Texas A&M University, College Station, TX, USA), K Schlage, A Anjali Panchwancee (DESY, Hamburg, Germany), S Sakshath Sadashivaiah (Technical

University Kaiserslautern, Kaiserslautern, Germany; Helmholtz Institut Jena, Jena, Germany; GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany), I Sergeev, O Leupold (DESY, Hamburg, Germany), A Chumakov (ESRF, Grenoble, France), O Kocharovskaya (Department of Physics and Astronomy, Texas A&M University, College Station, TX, USA), R Röhlberger (DESY, Hamburg, Germany; Friedrich-Schiller-Universität Jena, Jena, Germany; Helmholtz Institut Jena, Jena, Germany; GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany; The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany)

Nuclear Quantum Memory for Hard X-Ray Photons (invited talk) [Abstract](#)

SI.9 (18:00 – 19:30) **Chair:** John Howell (USA)

18:00 – 18:20 [J Howell](#) (Hebrew University of Jerusalem, Jerusalem, Israel; Chapman University, Orange CA, USA), A Jordan (University of Rochester, Rochester NY, USA; Chapman University, Orange CA, USA), B Soda, A Kempf (Perimeter Institute for Theoretical Physics, Waterloo, ON, Canada)

Super Radar (invited talk) [Abstract](#)

18:20 – 18:40 [R N Shakhmuratov](#) (Nonlinear Optics, Kazan Physical-Technical Institute, Kazan, Russia)

Gamma-Echo in Optical Domain (invited talk) [Abstract](#)

18:40 – 18:55 [R Piera](#), [Y Kurochkin](#), J Singh, J Grieve (Quantum communications, TII, Abu Dhabi, United Arab Emirates)

Public Randomness Verification Using Quantum Path Encoding (invited talk) [Abstract](#)

18:55 – 19:15 [A Belyanin](#) (Physics & Astronomy, Texas A&M University, College Station, USA)

Optical Frequency Combs from Quantum Cascade Lasers (invited talk) [Abstract](#)

19:15 – 19:35 [Y Rostovtsev](#) (Physics, University of North Texas, Denton TX, USA), G Brankovic, Z Brankovic, K Vojisavljević, A Malešević, Z M Stanojević, M Počuča-Nešić, J Mitrović (University of Belgrade, Institute for Multidisciplinary Research, Belgrade, Serbia)

Quantum Sensors: Application to Gas Detection (invited talk) [Abstract](#)

Thursday, 6 July, 2023

SI.10 (12:00 – 13:30) **Chair:** Barry Garraway (UK)

12:00 – 12:20 [S-W Li](#) (School of Physics, Beijing Institute of Technology, Beijing, China)

The Relaxation and Recurrence Behaviors in Isolated Finite Many-Body Systems (invited talk) [Abstract](#)

12:20 – 12:40 [I I Ryabtsev](#), [I I Beterov](#), [D B Tretyakov](#), [E A Yakshina](#) (A V Rzhzanov Institute of Semiconductor Physics, Novosibirsk, Russia; Physics Department, Novosibirsk State University, Novosibirsk, Russia), [V M Entin](#) (A V Rzhzanov Institute of Semiconductor Physics, Novosibirsk, Russia)

Three-Photon Laser Excitation of the Mesoscopic Ensembles and Single Rb Rydberg Atoms for Quantum Information (invited talk) [Abstract](#)

12:40 – 13:00 [R Behary](#), [I Novikova](#), [E E Mikhailov](#) (Physics, College of William and Mary, Williamsburg VA, USA), [A Gill](#), [A Buikema](#) (Draper Lab, Cambridge MA, USA)

Rydberg EIT Resonances in Atomic Vapor for Sensor Applications (invited talk) [Abstract](#)

13:00 – 13:15 [W Shannon](#), [V Kocharovskiy](#) (Institute for Quantum Science and Engineering, Texas A&M University, College Station, TX, USA)

Two-Mode Squeezing and Entanglement in Atomic Boson Sampling [Abstract](#)

13:15 – 13:35 [C Meng](#), [S Khamedi](#), [A van der Hel](#), [G A Brawley](#), [J S Bennett](#), [E Bridge](#), [W Bowen](#) (University of Queensland, Brisbane, Australia)

Towards Quantum Control of a Room Temperature Mechanical Resonator (invited talk) [Abstract](#)

SI.11 (16:00 – 17:30) **Chair:** Alexandre Kolomenski (USA)

16:00 – 16:20 [L Chen](#) (School of Physics and Astronomy, Shanghai Jiao Tong University, Shanghai, China)

Laser Driven Ultrahigh Charge Electron Acceleration for Nuclear Applications (invited talk) [Abstract](#)

16:20 – 16:45 [J Rocca](#) (Electrical and Computer Engineering, Colorado State University, Fort Collins CO, USA)

Picosecond Laser Filament-Guided Electrical Discharges in Air at 1 kHz Repetition Rate (invited talk) [Abstract](#)

16:45 – 17:00 [K B Oganesyan](#) (Theory Department, AI Alikhanyan National Science Laboratory (former Yerevan Physics Institute), Yerevan, Armenia; Institute of Experimental Physics SAS, Košice, Slovakia), [A H Gevorgyan](#) (Institute of High Technologies and Advanced Materials, Far Eastern Federal University, Vladivostok, Russia), [P Kopcansky](#) (Institute of Experimental Physics SAS, Košice, Slovakia)

Plasma Diagnostics by Stimulated Resonance Rotation of Polarization Plane of Probe Signal (invited talk) [Abstract](#)

17:00 – 17:20 [A J Verhoef](#) (Soil and Crop Sciences, Texas A&M University, College Station TX, USA; Institute for Quantum Science and Engineering (IQSE), Texas A&M University, College Station TX, USA), [A Classen](#) (Soil and Crop Sciences, Texas A&M University, College Station TX, USA), [A Dharmasiri](#), [R Nessler](#), [J T Florence](#), [A Zheltikov](#), [A V Sokolov](#) (Department of Physics and Astronomy, Texas A&M University, College Station TX, USA), [G S Agarwal](#), [M O Scully](#) (Institute for Quantum Science and Engineering (IQSE), Texas A&M University, College Station TX, USA), [A Fernández](#) (Soil and Crop Sciences, Texas A&M University, College Station TX, USA; Institute for Quantum Science and Engineering (IQSE), Texas A&M University, College Station TX, USA)

Multiphoton Super-Resolution Microscopy (invited talk) [Abstract](#)

17:20 – 17:35 [A Fernandez](#) (Soil and Crop Sciences, Texas A&M University, College Station TX, USA), D Sen (Physics & Astronomy, Texas A&M University, College Station, USA), Z T Fang, B Henrich (Soil and Crop Sciences, Texas A&M University, College Station TX, USA), A V Sokolov (Physics & Astronomy, Texas A&M University, College Station, USA), M O Scully (Institute for Quantum Science and Engineering, Texas A&M University, College Station, TX, USA), S Okumoto, A J Verhoef (Soil and Crop Sciences, Texas A&M University, College Station TX, USA)

Study of Nitrate Uptake in Roots with Raman Microscopy (invited talk) [Abstract](#)

SI.12 (18:00 – 19:30) Chair: Konstantin Dorfman (China)

18:00 – 18:20 [H Li](#) (Department of Physics, Florida International University, Miami FL, USA)

Ultrafast Meets Ultracold: Optical 2D Coherent Spectroscopy of Cold Atoms (invited talk) [Abstract](#)

18:20 – 18:40 [D Kurouski](#) (Texas A&M University, College Station, USA)

Tip-Enhanced Raman Imaging of Plasmon-Driven Coupling of 4-Nitrobenzenethiol on Au-Decorated Magnesium Nanostructures (invited talk) [Abstract](#)

18:40 – 18:55 [H A Schuessler](#), J Bounds, N Schnoor, A A Kolomenskii (Department of Physics and Astronomy, Texas A&M University, College Station, TX, USA), R Trainham, M Manard (Special Technologies Laboratory, Santa Barbara CA, USA)

Hyperfine Structure of Xe by Frequency Comb Calibrated Saturation and Collinear Fast Beam Spectroscopies (invited talk) [Abstract](#)

18:55 – 19:10 [A A Kolomenskii](#), C Rodriguez, J Bounds, E Aluauee, H A Schuessler (Department of Physics and Astronomy, Texas A&M University, College Station, TX, USA)

Local and Remote Measurements of Atmospheric Trace Gases (invited talk) [Abstract](#)

19:10 – 19:25 J Fan, [Y Shi](#), I Cojocar, L Jiang, A Alajlan, S Gao, O Kocharovskaya, A Akimov (Physics & Astronomy, Texas A&M University, College Station, USA), P Hemmer (Electrical & Computer Engineering, Texas A&M University, College Station, TX, USA; Physics & Astronomy, Texas A&M University, College Station, USA)

Transparency Resonances in Ensemble of Ge Vacancy Centers in Diamond [Abstract](#)

Friday, 7 July, 2023

SI.13 (12:00 – 13:30) Chair: Dawei Wang (China)

12:00 – 12:20 [D Smirnova](#) (Research School of Physics, Australian National University, Canberra, Australia; Theoretical Quantum Physics Laboratory, Center for Quantum Computing, RIKEN, Saitama, Japan)

Localized States in Nonlinear and Topological Photonic Systems (invited talk) [Abstract](#)

12:20 – 12:45 [R B Liu](#) (Department of Physics, The Chinese University of Hong Kong, New Territories, Hong Kong; Centre for Quantum Coherence, The Chinese University of Hong Kong, New Territories, Hong Kong; The Hong Kong Institute of Quantum Information Science and Technology, The Chinese University of Hong Kong, New Territories, Hong Kong)

Quantum Nonlinear Spectroscopy Via a Spin Sensor (invited talk) [Abstract](#)

12:45 – 13:00 [Q L Li](#) (Department of Physics, The Chinese University of Hong Kong, Shatin, Hong Kong)

Nonlocal Deformation Sensing Using Nanodiamond Quantum Sensors - Towards Live Cell Applications (invited talk) [Abstract](#)

13:00 – 13:20 [L Yuan](#) (School of Physics and Astronomy, Shanghai Jiao Tong University, Shanghai, China)

Studies of Synthetic Frequency Dimension in Two Coupled Rings (invited talk) [Abstract](#)

13:20 – 13:40 [K E Dorfman](#) (State Key Laboratory for Precision Spectroscopy, East China Normal University, Shanghai, China; 1Center for Theoretical Physics and School of Sciences, Hainan University, Haikou, China; 3Himalayan Institute for Advanced Study, Unit of Gopinath Seva Foundation, Rishikesh, India)

Metasurface Based Spectroscopy and Quantum Engineering Platform (invited talk) [Abstract](#)

SI.14 (16:00 – 17:30) Chair: Alexey Kalachev (Russia)

16:00 – 16:25 [M Nesladek](#), A Shukla (Physics, University Hasselt @ IMEC, division IMOMECE, Hasselt, Belgium)

High Fidelity Gates For NV Electron and Nuclear Spin Qubits [Abstract](#)

16:25 – 16:50 [A Ruskuc](#) (Applied Physics, California Institute of Technology, Pasadena CA, USA), C-J Wu (Physics, California Institute of Technology, Pasadena CA, USA), J Choi (Electrical Engineering, Stanford University, Stanford CA, USA), S Hermans, A Faraon (Applied Physics, California Institute of Technology, Pasadena CA, USA)

Heralded Entanglement of Single Rare-Earth Ion Qubits (invited talk) [Abstract](#)

16:50 – 17:10 [A V Akimov](#) (Quantum simulators and Integrated Photonics group, Russian Quantum Center, Moscow, Russia)

Double Electron–Electron Resonance for C-Centers in Diamond: Optimization, Coherent Control and Concentration Measurements (invited talk) [Abstract](#)

17:10 – 17:30 [D Voronin](#) (Department of Physics, University of South Florida, Tampa, USA)

Nanoscale Imaging and Coupling of 2D Nanoribbons (invited talk) [Abstract](#)

SI.15 (18:00 – 19:30) Chair: Dmitry Voronin (USA)

- 18:00 – 18:20 [B S Lukiyanchuk](#) (Faculty of Physics, M.V. Lomonosov Moscow State University, Moscow, Russia)
Magnetic Fields Generated by Light in Dielectric Particles (invited talk) [Abstract](#)
- 18:20 – 18:45 [C S Menoni](#) (Electrical and Computer Engineering, Colorado State University, Fort Collins CO, USA)
Amorphous Thin Films and Their Impact in Laser Science (invited talk) [Abstract](#)
- 18:45 – 19:10 [S A Zhuravitskii](#), [N N Skryabin](#) (Quantum Technology Centre of Moscow State University, Moscow, Russia; Institute of spectroscopy RAS, Moscow, Troitsk, Russia), [I V Dyakonov](#) (Quantum Technology Centre of Moscow State University, Moscow, Russia), [A A Kalinkin](#) (Quantum Technology Centre of Moscow State University, Moscow, Russia; Institute of spectroscopy RAS, Moscow, Troitsk, Russia), [S P Kulik](#) (Quantum Technology Centre of Moscow State University, Moscow, Russia), [Y V Kartashov](#) (Institute of spectroscopy RAS, Moscow, Troitsk, Russia), [A A Arkhipova](#) (Institute of spectroscopy RAS, Moscow, Troitsk, Russia; Faculty of Physics, Higher School of Economics, Moscow, Russia), [V O Kompanets](#), [S V Chekalin](#) (Institute of spectroscopy RAS, Moscow, Troitsk, Russia), [V N Zadkov](#) (Institute of spectroscopy RAS, Moscow, Troitsk, Russia; Faculty of Physics, Higher School of Economics, Moscow, Russia)
Femtosecond Laser Written 2d Waveguide Lattices for Nonlinear Topological Photonics (invited talk) [Abstract](#)
- 19:10 – 19:25 [I A Tereshchenko](#), [O V Tikhonova](#) (Physics Department, Lomonosov Moscow State University, Moscow, Russia; Skobeltsyn Institute of Nuclear Physics, Moscow, Russia)
Analysis of the Excitation Dynamics in 2D Semiconductor Nanostructures Induced by a Quantum Electromagnetic Field Under the Kerr Phase Modulation [Abstract](#)
- 19:25 – 19:40 [C B Reynolds](#), [V V Kocharovsky](#) (Department of Physics and Astronomy, Texas A&M University, College Station, TX, USA)
Degenerate Bound States in the Continuum in a Grating Waveguide [Abstract](#)