

27th International Laser Physics Workshop  
(LPHYS'18)

July 16–20, 2018, Nottingham, United Kingdom

# PROGRAM



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July 3, 2018

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## Background

The 27<sup>th</sup> annual International Laser Physics Workshop (LPHYS'18) is being held from July 16 to July 20, 2018, in the City of Nottingham, United Kingdom, at the University of Nottingham, hosted by the Institute of Physics.

LPHYS'18 continues a series of Workshops held in Dubna 1992, Dubna/Volga river tour 1993, New York 1994, Moscow/Volga river tour (jointly with NATO SILAP Workshop) 1995, Moscow 1996, Prague 1997, Berlin 1998, Budapest 1999, Bordeaux 2000, Moscow 2001, Bratislava 2002, Hamburg 2003, Trieste 2004, Kyoto 2005, Lausanne 2006, León (Mexico) 2007, Trondheim 2008, Barcelona 2009, Foz do Iguaçu 2010 (Brazil), Sarajevo 2011, Calgary 2012, Prague 2013, Sofia 2014, Shanghai 2015, Yerevan 2016 and Kazan 2017. The total number of participants is expected to be about 350. In the past, participation was typically from over 30 countries.

As in the last year, this year the conference has been endorsed by the Optical Society (OSA). LPHYS'18 has been listed on the OSA industry Calendar of Events.



## General Information

### Organizers



A.M. Prokhorov General Physics Institute, Moscow, Russia



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International Laser Center, Moscow, Russia

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<b>Heather Blackhall</b>	IOP, London, UK
<b>Maria Rogers</b>	Nottingham Conferences, Nottingham, UK

## Meeting Timetable and Location of the Events

### Location of the Events

#### *Coates Road Auditorium*

No.	Name
H2	Tiered Auditorium

#### *Engineering and Science Learning Centre (ESLC)*

No.	Name
H1	B14
H3	B02
H5	B08
H6	B07
H7	C01
H9	B01

### Seminars Legend

Code	Title
OR	Opening Remarks
P1	Plenary Session
S1	Seminar 1: Modern Trends in Laser Physics
S2	Seminar 2: Strong Field & Attosecond Physics
S3	Seminar 3: Laser Biomedical Applications
S4	Seminar 4: Physics of Lasers
S5	Seminar 5: Nonlinear Optics & Spectroscopy
S6	Seminar 6: Physics of Cold Trapped Atoms
S7	Seminar 7: Quantum Information Science
S8	Seminar 8: Fiber Optics
S9	Seminar 9: Extreme Light Technologies, Science, and Applications
CR	Closing Remarks

## Schedule

**Monday, 16 July, 2018**

	S1	S2	S3	S4	S5	S6	S7	S8	S9
09:30-10:00	Opening Remarks: Hall 2								
10:00-10:45	Plenary Session: Hall 2								
10:45-11:15	Coffee Break								
11:15-12:30	H1	H2	H3		H5	H6	H7		H9
12:30-14:00	Lunch Break								
14:00-16:00	H1	H2	H3		H5	H6	H7		H9
16:00-16:30	Coffee Break								
16:30-18:30	H1	H2	H3		H5	H6	H7		H9
19:00-22:00	Welcome Party								

**Tuesday, 17 July, 2018**

	S1	S2	S3	S4	S5	S6	S7	S8	S9
09:15-10:00	Plenary Session: Hall 2								
10:00-10:45	Plenary Session: Hall 2								
10:45-11:15	Coffee Break								
11:15-12:30	H1	H2			H5	H6	H7		H9
12:30-14:00	Lunch Break								
14:00-16:00	H1	H2			H5	H6	H7		H9
17:30-20:00	Poster Session								

**Wednesday, 18 July, 2018**

	S1	S2	S3	S4	S5	S6	S7	S8	S9
09:15-10:00	Plenary Session: Hall 2								
10:00-10:45	Plenary Session: Hall 2								
10:45-11:15	Coffee Break								
11:15-12:30	H1	H2			H5	H6	H7	H3	H9
12:30-14:00	Lunch Break								
14:00-16:00	H1	H2			H5	H6	H7	H3	H9
16:00-16:30	Coffee Break								
16:30-18:30	H1	H2		H5		H6	H7	H3	H9
19:30-22:00	Official Dinner								

**Thursday, 19 July, 2018**

	S1	S2	S3	S4	S5	S6	S7	S8	S9
09:15-10:00	Plenary Session: Hall 2								
10:00-10:30	Coffee Break								
10:30-12:30	H1	H2				H6	H7		H9
12:30-14:00	Lunch Break								
14:00-16:00	H1	H2				H6	H7		H9
16:00-16:30	Coffee Break								
16:30-19:30	H1	H2					H7		H9



**Friday, 20 July, 2018**

	S1	S2	S3	S4	S5	S6	S7	S8	S9
09:15-10:45	H1	H2					H7		H9
10:45-11:15	Coffee Break								
11:15-12:30	H1	H2					H7		H9
12:30-14:00	Lunch Break								
14:00-16:00		H2					H7		H9
16:00-16:15	Closing Remarks: Hall 7								
16:15-16:45	Coffee Break								

## Opening Remarks

Monday, 16 July, 2018

**OR.1 (09:30 – 10:00)**

**OR.1.1**      S P Kulik (Moscow, Russia)  
09:30 – 09:45      *Opening Remarks*

## Plenary Session

Monday, 16 July, 2018

**PL.1 (10:00 – 10:45)**

**Chair:** Jon Marangos (UK)

**PL.1.1**      P Knight (London, UK; Teddington, UK)  
10:00 – 10:30      *Single Photons and Nonclassicality*

Tuesday, 17 July, 2018

**PL.2 (09:15 – 10:00)**

**Chair:** Alexander Fedotov (Russia)

**PL.2.1**      E Esarey (Berkeley CA, USA)  
09:15 – 09:45      *Laser-Plasma Accelerators for Colliders and Light Sources*

**PL.3 (10:00 – 10:45)**

**Chair:** Mikhail Fedorov (Russia)

**PL.3.1**      M Murnane, H Kapteyn (Boulder CO, USA)  
10:00 – 10:30      *Probing Matter at the Spatio-Temporal Limits Using Coherent X-Ray Beams from Tabletop Femtosecond Lasers*

Wednesday, 18 July, 2018

**PL.4 (09:15 – 10:00)**

**Chair:** Sergei Kulik (Russia)

**PL.4.1**      A A Kalachev (Kazan, Russia)  
09:15 – 09:45      *Isotopically Purified Crystals for Optical Quantum Memory*

**Pl.5 (10:00 – 10:45)****Chair:** Olga Kosareva (Russia)

**Pl.5.1**      J-P Wolf (Geneva, Switzerland)  
10:00 – 10:30      *Controlling Atmospheric Processes with High Intensity Laser Filaments*

**Thursday, 19 July, 2018****Pl.6 (09:15 – 10:00)****Chair:** Vanderlei S. Bagnato (Brazil)

**Pl.6.1**      Z Hadzibabic (Cambridge, UK)  
09:15 – 09:45      *Quantum Gas in a Box*

# Seminar 1: Modern Trends in Laser Physics

## Co-Chairs

<b>Olga Kocharovskaya</b>	Texas A&M University, College Station, TX, USA
<b>Kirill A. Prokhorov</b>	A.M. Prokhorov General Physics Institute, Moscow, Russia

**Monday, 16 July, 2018**

**S1.1 (11:15 – 12:30)**

**Chair:** Olga Kocharovskaya (USA)

- S1.1.1** 11:15 – 11:40 S P Walborn, A H Pimentel, R L de Matos Filho, L Davidovich (Rio de Janeiro, Brazil)  
*Quantum-Enhanced Sensing from Hyperentanglement* (invited talk)
- S1.1.2** 11:40 – 12:05 S Asiri, Z Liao, M S Zubairy (College Station, TX, USA)  
*Quantum State Reconstruction of a Mechanical Mirror in a Hybrid System* (invited talk)
- S1.1.3** 12:05 – 12:30 A Ortu, A Tiranov (Geneva, Switzerland), S Welinski, A Ferrier, P Goldner (Paris, France), F Froewis, N Gisin, M Afzelius (Geneva, Switzerland)  
*Simultaneous Coherence Enhancement of Optical and Microwave Transitions in Solid-State Electronic Spins* (invited talk)

**S1.2 (14:00 – 16:00)**

**Chair:** Suhail Zubairy (USA)

- S1.2.1** 14:00 – 14:25 V Akulin (Orsay, France)  
*Nonlinear Coupling of Photons via a Collective Mode of Transparent Superconductor* (invited talk)
- S1.2.2** 14:25 – 14:50 G Kurizki (Rehovot, Israel)  
*Quantum Thermodynamics Under Control* (invited talk)
- S1.2.3** 14:50 – 15:10 F Li (Xi'an, China)  
*Three-Photon Emission and Correlation via Frequency Down-Conversion in a Sagnac Interferometer* (invited talk)

**S1.2.4** 15:10 – 15:35 D V Sychev (Moscow, Russia), A E Ulanov (Dolgoprudny, Russia; Moscow, Russia), A A Pushkina (Calgary, Canada), E S Tiunov (Dolgoprudny, Russia; Moscow, Russia), M W Richards (Calgary, Canada), V Novikov (Dolgoprudny, Russia; Moscow, Russia), I A Fedorov (Moscow, Russia), A I Lvovsky (Calgary, Canada; Moscow, Russia)  
*Interfacing Discrete- and Continuous-Variable Encodings in Quantum Optics* (invited talk)

**S1.2.5** 15:35 – 16:00 Y-S Ra, A Dufour, M Walschaers, C Jacquard, T Michel, C Fabre, N Treps (Paris, France)  
*Generation of Non-Gaussian Quantum States of Multimode Light Field* (invited talk)

### S1.3 (16:30 – 18:30)

**Chair:** Luiz Davidovich (Brazil)

**S1.3.1** 16:30 – 16:55 I Novikova, N Prajapati, N Super, M A Guidry, M Zhang (Williamsburg VA, USA), R N Lanning, Z Xiao, J P Dowling (Baton Rouge LA, USA), E E Mikhailov (Williamsburg VA, USA)  
*Generation of the Spatially Multimode Squeezed Light in Hot Rb Vapor* (invited talk)

**S1.3.2** 16:55 – 17:20 S Muralidharan, S Santra (Adelphi MD, USA), C Monroe (College Park MD, USA), L Jiang (New Haven CT, USA), V S Malinovsky (Adelphi MD, USA)  
*Entanglement Distribution Rates Using Quantum Repeaters Based on Two-Species Trapped Ions* (invited talk)

**S1.3.3** 17:20 – 17:35 A Duplinsky, E Kiktemko, A Fedorov, N Pozhar, V Kurochkin, Y Kurochkin (Moscow, Russia)  
*Urban Quantum Cryptography with Polarization States* (invited talk)

**S1.3.4** 17:35 – 17:55 A M Akulshin (Mainz, Germany; Melbourne, Australia), F Pedreros Bustos (Mainz, Germany), N Rahaman, R J McLean, R Scholten, S A Suslov (Melbourne, Australia), D Budker (Berkeley CA, USA; Mainz, Germany)  
*Continuous-Wave Mirrorless Lasing in Two-Photon Excited Alkali Vapours* (invited talk)

**S1.3.5** 17:55 – 18:15 E Pachniak (Hoboken, NJ, USA), Y V Rostovtsev (Denton, TX, USA), S A Malinovskaya (Hoboken, NJ, USA)  
*Generation of Entanglement in a Three-Atomic Rb Chain Via Chirped Optical Pulses* (invited talk)

- S1.3.6** E E Mikhailov, S Cuozzo, I Novikova (Williamsburg VA, USA)  
 18:15 – 18:30 *From Vibration Insensitive Laser to the Cavity Length Change Enhanced Sensitivity* (invited talk)

## Tuesday, 17 July, 2018

### S1.4 (11:15 – 12:30)

**Chair:** Jon Marangos (UK)

- S1.4.1** S Varró (Budapest, Szeged, Hungary)  
 11:15 – 11:40 *Planck's Interpolation Formula for Black-Body Radiation Is Revisited* (invited talk)
- S1.4.2** T Pfeifer (Heidelberg, Germany)  
 11:40 – 12:05 *Extracting Time-Dependent Non-Perturbative Non-Linear Response Functions from Spectral Measurements* (invited talk)
- S1.4.3** D B Milošević (Berlin, Germany; Sarajevo, Bosnia and Herzegovina)  
 12:05 – 12:30 *The Influence of the Driving-Bicircular-Field Component Intensities on the Helicities of Emitted High-Order Harmonics*

### S1.5 (14:00 – 16:00)

**Chair:** Reinhard Kienberger (Germany)

- S1.5.1** J P Marangos, A L Johnson, D Austin, E Larsen, D Wood, J W G Tisch, T Barillot, S Jarosch, L J Frasinski, V Averbukh (London, UK)  
 14:00 – 14:25 *Time-Resolved X-Ray Spectroscopy: Towards Sub-Femtosecond Resolution* (invited talk)
- S1.5.2** T R Akhmedzhanov (College Station, TX, USA), V A Antonov (Nizhny Novgorod, Russia), K-C Han, O Kocharovskaya (College Station, TX, USA)  
 14:25 – 14:50 *Amplification of Attosecond High-Harmonic X-Ray Pulses by Plasma-Based X-Ray Lasers* (invited talk)
- S1.5.3** U Thumm (Manhattan KS, USA)  
 14:50 – 15:15 *Streaked and Interferometric Photoemission from Solid Surfaces and Nanoparticles* (invited talk)
- S1.5.4** P D Grugan, S Luo, Z Demircioglu, B C Walker (Newark DL, USA)  
 15:15 – 15:40 *Atoms and Molecules in Ultra-Strong Laser Fields: Modeling, Spectroscopy, and a Move to the Inner Shell Ion* (invited talk)
- S1.5.5** X Kong (Heidelberg, Germany), J Haber, R Röhlberger (Hamburg, Germany), A Palfy (Heidelberg, Germany)  
 15:40 – 16:05 *Rabi Oscillations of X-Ray Radiation Between Two Nuclear Ensembles* (invited talk)

**Wednesday, 18 July, 2018****S1.6 (11:15 – 12:30)****Chair:** Vladimir Malinovsky (USA)

- S1.6.1** P Hemmer (College Station TX, USA)  
11:15 – 11:35 *Biosensing with Nano-Diamonds and Nano-Phosphors* (invited talk)
- S1.6.2** Q Li (New Territories, Hong Kong)  
11:35 – 11:55 *Enabling Diamond Quantum Sensing at Elevated Temperatures* (invited talk)
- S1.6.3** A V Akimov (Moscow, Russia; College Station, TX, USA), P Kapitanova (St.-Petersburg, Russia), V V Soshenko, V V Vorobyov (Moscow, Russia), D Dobrykh (St.-Petersburg, Russia), S V Bolshedvorskii, V N Sorokin (Moscow, Russia)  
11:55 – 12:15 *Highly Efficient Dielectric Resonator Antenna for Ensembles of Nitrogen – Vacancy Color Centers in Diamond* (invited talk)
- S1.6.4** D V Popolitova, O V Tikhonova (Moscow, Russia)  
12:15 – 12:30 *Coherent Population Trapping Induced by Non-Classical Light in Three-Level Atomic System*

**S1.7 (14:00 – 16:00)****Chair:** Nina Rohringer (Germany)

- S1.7.1** C H Keitel, Y Wu, J Gunst, A Pálffy, C Lyu, S M Cavaletto, Z Harman (Heidelberg, Germany)  
14:00 – 14:20 *Nuclear Excitation and Narrow-Band Hard-X-Ray Lasing* (invited talk)
- S1.7.2** R Röhlberger (Hamburg, Germany)  
14:20 – 14:45 *Quantum Imaging with X-Rays* (invited talk)
- S1.7.3** Y Shvyd'ko (Argonne IL, USA)  
14:45 – 15:10 *Self-Seeded Hard X-Ray Free-Electron Lasers – Present and Future* (invited talk)
- S1.7.4** S Shwartz, A Schori, D Borodin (Ramat Gan, Israel), K Tamasaku ( Sayo-cho, Sayo-gun, Hyogo , Japan)  
15:10 – 15:35 *Ghost Imaging with Paired X-Ray Photons* (invited talk)
- S1.7.5** J Evers (Heidelberg, Germany)  
15:35 – 16:00 *Shaping the Spectra of Short X-Ray Pulses by Mechanical Means* (invited talk)

**S1.8 (16:30 – 18:30)****Chair:** Jörg Evers (Germany)

**S1.8.1** 16:30 – 16:55 A Le Marec (Orsay, France), O Larroche (Bruyères Le Châtel, France), A Klisnick (Orsay, France)  
*Pulse Duration Encoding in Linear Autocorrelation Measurements of Partially Coherent XUV Sources* (invited talk)

**S1.8.2** 16:55 – 17:20 N Rohringer (Hamburg, Germany), L Mercadier (Hamburg, Germany; Schenefeld, Germany), A Benediktovitch, V P Majety (Hamburg, Germany), C Weninger (Menlo Park CA, USA; Hamburg, Germany), M Blessenohl (Heidelberg, Germany), B Langbehn, D Rupp (Berlin, Germany), C Bomme, B Erk (Hamburg, Germany), M Bucher (Lemont, IL, USA), A Nelde (Berlin, Germany), H Bekker, S Bernitt, S Dobrodey (Heidelberg, Germany), A Sanchez-Gonzalez (London, UK), A Przystawik (Hamburg, Germany), R Steinbrügge (Heidelberg, Germany), A Rudenko (Manhattan KS, USA), Z Yin (Hamburg, Germany), M Khalal, P Lablanquie (Paris, France), D Rolles (Manhattan KS, USA), T Möller (Berlin, Germany), T Laarmann (Hamburg, Germany), C Bostedt (Lemont, IL, USA), J R Crespo Lopez-Urrutia (Heidelberg, Germany)  
*XUV Superradiance of Noble Gases and Noble-Gas Clusters* (invited talk)

**S1.8.3** 17:20 – 17:45 D Neely (Didcot, UK)  
*Laser Accelerated Sources and Applications* (invited talk)

**S1.8.4** 17:45 – 18:10 A Benediktovitch, V P Majety, N Rohringer (Hamburg, Germany)  
*Collective Spontaneous Emission from Medium Irradiated by Short FEL Pulses: Theoretical Model and Application to Xe Gas Experiment*

**S1.8.5** 18:10 – 18:30 R Ooi (Kuala Lumpur, Malaysia)  
*Interference Features of Electron Wavepacket in Intense Laser Fields with Arbitrary Polarization* (invited talk)

**Thursday, 19 July, 2018****S1.9 (10:30 – 12:30)****Chair:** Philip Hemmer (USA)

**S1.9.1** 10:30 – 10:50 A Afanasev (Washington DC, USA)  
*Selective Population of Atomic Zeeman Sublevels Using Twisted Photons* (invited talk)



- S1.9.2**            K Hakuta (Tokyo, Japan)  
10:50 – 11:15    *Hybrid System of an Optical Nanofibre and a Single Quantum Dot Operated at Cryogenic Temperatures* (invited talk)
- S1.9.3**            R Gutiérrez-Jáuregui, H J Carmichael (Auckland, New Zealand)  
11:15 – 11:35    *Dissipative Quantum Phase Transitions of Light in a Generalized Jaynes-Cummings-Rabi Model* (invited talk)
- S1.9.4**            S Welinski (Paris, France), P J T Woodburn (Boseman MT, USA),  
11:35 – 11:55    N Lauk (Calgary, Canada), R L Cone (Boseman MT, USA), C Simon (Calgary, Canada), C W Thiel (Boseman MT, USA), P Goldner (Paris, France)  
*Electron Spin Coherence in Optically Excited States of Rare-Earth Ions* (invited talk)
- S1.9.5**            D Serrano, J Karlsson, A Fossati, A Ferrier, A Tallaire, P Goldner (Paris, France)  
11:55 – 12:10    *Rare-Earth Doped Nanoparticles with Millisecond-Long Spin Coherence Lifetime* (invited talk)
- S1.9.6**            M G Gladush, A V Naumov (Moscow, Russia; Troitsk, Moscow, Russia), A A Gorshelev (Troitsk, Moscow, Russia), J Köhler, L Kador (Bayreuth, Germany)  
12:10 – 12:30    *Probing the Local Field Fluctuations in Frozen Solid Films with Single Molecules*

### **S1.10 (14:00 – 16:00)**

**Chair:** Alexei Sokolov (USA)

- S1.10.1**            A Dogariu (Princeton NJ, USA), R B Miles (College Station TX, USA; Princeton NJ, USA)  
14:00 – 14:25    *Atmospheric Backwards Air Lasing from Argon* (invited talk)
- S1.10.2**            C Metayer, J M Boyer (Noumea, New Caledonia), A Gomel (Buenos Aires, Argentina), J Tredicce (Buenos Aires, Argentina; Noumea, New Caledonia)  
14:25 – 14:50    *Laser as a Test Bench to Study Indicators of Extreme Events and Bifurcations* (invited talk)
- S1.10.3**            Y Rostovtsev, M Moazzezi (Denton, TX, USA)  
14:50 – 15:10    *Frequency Shift of an Optical Cavity Mode Due to a Single Atom Motion* (invited talk)
- S1.10.4**            Y-H Kuan, W-T Liao (Taoyuan, Taiwan)  
15:10 – 15:35    *Transition from Amplification of Spontaneous Emission to Superfluorescence in Swept Atomic Excitation* (invited talk)
- S1.10.5**            E S Fry (College Station, TX, USA)  
15:35 – 16:00    *Integrating Cavities and Ring-Down Spectroscopy* (invited talk)

**S1.11 (16:30 – 19:30)****Chair:** Edward Fry (USA)

- S1.11.1** 16:30 – 16:55 A Materny, P Donfack, T Z Khan, F Mohaghegh, A M Tehrani (Bremen, Germany)  
*Metal-Molecule Coupling Investigated in Frequency and Time Domain* (invited talk)
- S1.11.2** 16:55 – 17:15 A V Sokolov, M Shutova, A Bahari, A Shutov, A Zhdanova, K Wang, M Zhi (College Station, TX, USA)  
*Molecular Modulation with Spatio-Temporal Shaping of Optical Fields* (invited talk)
- S1.11.3** 17:15 – 17:35 H Wan, A Volkmer (Stuttgart, Germany)  
*Time-Resolving Ultrafast Plasmon Dephasing in Single Gold Nanoparticles* (invited talk)
- S1.11.4** 17:35 – 17:55 Z Xu, A Rahnama, D Strickland (Waterloo, Canada)  
*Rabi Frequency Shifted Raman Spectra* (invited talk)
- S1.11.5** 17:55 – 18:15 D Kuroski (College Station TX, USA)  
*Detection and Identification of Crop Diseases by Raman Spectroscopy* (invited talk)
- S1.11.6** 18:15 – 18:35 S K Sekatskii (Lausanne, Switzerland)  
*Photonic Crystal Supported Surface Electromagnetic Waves and Their Use for Ultrasensitive Label-Free Biosensing and Generation of Long Propagating Surface Plasmon - Polaritons* (invited talk)
- S1.11.7** 18:35 – 18:55 A Rebane (Boseman MT, USA; Tallinn, Estonia)  
*Femtosecond Two-Photon Absorption Spectroscopy Probes Molecular Electron Charge Transfer* (invited talk)
- S1.11.8** 18:55 – 19:15 J Xia, F Zhu, J Bounds, A A Kolomenskii (College Station, TX, USA), J Strohaber (Tallahassee, USA), S Zhang (Jinan, China), M Amani (Doha, Qatar), H A Schuessler (Doha, Qatar; College Station, TX, USA)  
*Trace Gas Detection in the Atmosphere with Absorption Spectroscopy in the Near- and Mid-IR* (invited talk)

**Friday, 20 July, 2018****S1.12 (09:15 – 10:45)****Chair:** Alexey Akimov (USA)

- S1.12.1** 09:15 – 09:40 P Cheinet, P Pillet (Orsay, France), D B Tretyakov, I I Beterov, E A Yakshina, V M Entin, I I Ryabtsev (Novosibirsk, Russia)  
*Few-Body Interactions in a Cold Rydberg Gas* (invited talk)

- S1.12.2**      M Marcuzzi (Nottingham, UK), M Buchhold, S Diehl (Cologne, Germany), I Lesanovsky (Nottingham, UK)  
09:40 – 10:00      *Non-Equilibrium Phase Transitions in Laser-Driven Rydberg Atoms* (invited talk)
- S1.12.3**      R K Hanley, A D Bounds, N C Jackson, R Faoro, E M Bridge, P Huillery, M P A Jones (Durham, UK)  
10:00 – 10:20      *A Rydberg-Dressed Magneto-Optical Trap* (invited talk)
- S1.12.4**      W F McGrew, X Zhang, R J Fasano, S A Schaffer, K Beloy, D Nicolodi, R C Brown, N Hinkley, G Milani, M Schioppo, T-H Yoon, A D Ludlow (Boulder CO, USA)  
10:20 – 10:40      *Ytterbium Optical Lattice Clocks Supporting  $1 \times 10^{-18}$  Frequency Comparisons* (invited talk)

### S1.13 (11:15 – 12:30)

**Chair:** Yuri Rostovtsev (USA)

- S1.13.1**      H Nishikawa, K Kashihara, T Nakajima (Kyoto, Japan)  
11:15 – 11:40      *In-Situ Synthesis of Polymer-Metal Nanocomposite Films Using a Mid-IR Laser* (invited talk)
- S1.13.2**      S M Shahriar, R Fang, R Sarkar (Evanston IL, USA)  
11:40 – 12:05      *Interference at Decillion Hz Compton Frequency: Enhancing Sensitivity of an Atomic Interferometer to the Heisenberg Limit using Increased Quantum Noise* (invited talk)
- S1.13.3**      A Valles, G Jimenez, L J Salazar-Serrano, J P Torres (Barcelona, Spain)  
12:05 – 12:25      *Optical Coherence Tomography with Nonlinear Interferometers* (invited talk)

## Seminar 2: Strong Field & Attosecond Physics

### Co-Chairs

<b>Wilhelm Becker</b>	Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy, Berlin, Germany
<b>Jens Biegert</b>	Institute of Photonic Sciences, Barcelona, Spain
<b>Mikhail V. Fedorov</b>	A.M. Prokhorov General Physics Institute, Moscow, Russia
<b>Jon Marangos</b>	Imperial College London, London, UK

### Monday, 16 July, 2018

#### *S2.1 (11:15 – 12:30)*

**Chair:** Wilhelm Becker (Germany)

*S2.1.1* P Agostini, C I Bлага, Y H Lai, J Xu, L F DiMauro (Columbus OH, USA)

11:15 – 11:40

*Argon ATI Plateau with a Twist* (invited talk)

*S2.1.2* D Bauer, H Drücke (Rostock, Germany), K Hansen (Aarhus, Denmark)

11:40 – 12:05

*High Harmonic Generation, Symmetry and Topology* (invited talk)

*S2.1.3* H Drücke, D Bauer (Rostock, Germany)

12:05 – 12:20

*Robustness of Topological Effects in High-Harmonic Generation by Linear Chains* (invited talk)

#### *S2.2 (14:00 – 16:00)*

**Chair:** Dieter Bauer (Germany)

*S2.2.1* M F Ciappina (Prague, Czech Republic), J A Pérez-Hernández (Salamanca, Spain), L Ortmann (Dresden, Germany), A Chacón (Los Alamos NM, USA), G Zeraouli (Salamanca, Spain), A S

14:00 – 14:25

Landsman (Dresden, Germany), J Schötz, M Kling (Garching, Germany), L Roso (Salamanca, Spain), A Zair (London, UK), M Lewenstein (Barcelona, Spain)

*Extending Conventional HHG and ATI Limits Using Plasmonic-Enhanced Fields* (invited talk)

- S2.2.2** 14:25 – 14:45 L Ortmann (Dresden, Germany), J A Pérez-Hernández (Salamanca, Spain), M F Ciappina (Prague, Czech Republic), J Schötz, (München, Germany), A Chacón, (Los Alamos NM, USA), G Zeraouli (Salamanca, Spain), M F Kling (München, Germany), L Roso (Salamanca, Spain), M Lewenstein (Barcelona, Spain), A S Landsman (Dresden, Germany; Pohang, South Korea)  
*Emergence of a Higher-Energy Structure in Strong-Field Ionization with Inhomogeneous Electric Fields*
- S2.2.3** 14:45 – 15:15 T Pfeifer (Heidelberg, Germany)  
*Imaging Electronic and Structural Processes of Molecules Interacting with Intense Optical and XUV Fields* (invited talk)
- S2.2.4** 15:15 – 15:45 S Zayko, O Kfir (Göttingen, Germany), M Heigl (Augsburg, Germany), M Sivis (Göttingen, Germany), M Albrecht (Augsburg, Germany), C Ropers (Göttingen, Germany)  
*Nanoscale Magnetic Imaging Using High-Harmonic Radiation* (invited talk)
- S2.2.5** 15:45 – 16:00 M Isinger (Lund, Sweden), R J Squibb (Gothenburg, Sweden), D Busto, S Zhong, A Harth, D Kroon, S Nandi, C L Arnold, M Miranda (Lund, Sweden), J M Dahlström (Lund, Sweden; Stockholm, Sweden), E Lindroth (Stockholm, Sweden), R Feifel (Gothenburg, Sweden), M Gisselbrecht, A L'Huillier (Lund, Sweden)  
*Photoionization in the Time and Frequency Domain*

### S2.3 (16:30 – 18:30)

- S2.3.1** 16:30 – 16:55 C Alexandridi, M Turconi (Gif Sur Yvette, France), L Barreau (Berkeley CA, USA), D Busto, M Isinger, S Zhong, S Nandi (Lund, Sweden), A Borot, D Platzer, J-F Hergott, O Tcherbakoff (Gif Sur Yvette, France), D Kroon (Lund, Sweden), A Harth (Heidelberg, Germany), R Squibb (Gothenburg, Sweden), M Gisselbrecht, M Miranda, C L Arnold (Lund, Sweden), R Feifel (Gothenburg, Sweden), A L'Huillier (Lund, Sweden), P Salières (Gif Sur Yvette, France)  
*Attosecond Spectroscopy: Ionization Dynamics of Argon Close to Strong Structural Features*
- S2.3.2** 16:55 – 17:25 M Kübel (München, Germany; Ottawa, Canada), A Yu Naumov, D M Villeneuve, P B Corkum, A Staudte (Ottawa, Canada)  
*Streak Camera for Strong-Field Ionization and Orbital Imaging* (invited talk)
- S2.3.3** 17:25 – 17:45 X Y Lai, W Quan, S G Yu, X J Liu (Wuhan, China)  
*Structural Imaging and Ultrafast Photoelectron Dynamics of Atoms and Molecules in the Strong Laser Fields*

- S2.3.4**      Y Liu (Beijing, China)  
17:45 – 18:05    *Attoclock Photoelectron Interferometry with Two-Color Corotating Circular Fields* (invited talk)
- S2.3.5**      S N Balybin, O V Tikhonova (Moscow, Russia)  
18:05 – 18:25    *Peculiarities of Atomic Ionization in Multiphoton Squeezed Light*

## Tuesday, 17 July, 2018

### S2.4 (11:15 – 12:30)

**Chair:** Alexander Popov (Russia)

- S2.4.1**      H R Reiss (Berlin, Germany; Washington DC, USA)  
11:15 – 11:40    *Potentials are Primary in Electrodynamics and Fields are Secondary* (invited talk)
- S2.4.2**      N Rohringer (Hamburg, Germany), T Kroll (Menlo Park CA, USA),  
11:40 – 12:10    C Wening (Menlo Park CA, USA; Hamburg, Germany), R Alonso-Mori, D. Sokaras, D Zhu (Menlo Park CA, USA), L Mercadier, V P Majety (Hamburg, Germany), A Marinelli, A Lutman, M W Guetg, F J Decker, S Boutet, A Aquila, J Koglin, J Koralek, D P DePonte (Menlo Park CA, USA), J Kern (Menlo Park CA, USA; Berkeley CA, USA), F D Fuller, E Pastor (Berkeley CA, USA), T Fransson, Y Zhang (Menlo Park CA, USA), J Yano, V K Yachandra (Berkeley CA, USA), U Bergmann (Menlo Park CA, USA)  
*Stimulated X-Ray Emission Spectroscopy for Chemical Analysis* (invited talk)
- S2.4.3**      I Yu Kostyukov, A A Golovanov, I I Artemenko (Nizhny Novgorod, Russia)  
12:10 – 12:30    *Field Ionization in Extremely Intense Laser Pulses*

### S2.5 (14:00 – 16:00)

**Chair:** Sándor Varró (Hungary)

- S2.5.1**      U Eichmann (Berlin, Germany)  
14:00 – 14:30    *Ultrafast Atomic and Molecular Excitation in Strong Laser Fields* (invited talk)
- S2.5.2**      L Drescher, O Kornilov, T Witting, G Reitsma, N Monserud, A Rouzée, J Mikosch, M J J Vrakking, B Schütte (Berlin, Germany)  
14:30 – 15:00    *Extreme-Ultraviolet Refractive Optics* (invited talk)
- S2.5.3**      K Krajewska, F Cajiao Vélez, J Z Kamiński (Warsaw, Poland)  
15:00 – 15:25    *Electron Bessel States in High-Energy Ionization* (invited talk)

- S2.5.4**      E S Khramov, V A Astapenko, N N Moroz (Moscow, Russia)  
15:25 – 15:35    *Compton Scattering of Ultrashort X-Ray Pulses on Atoms of Noble Gases*
- S2.5.5**      E Lindroth (Stockholm, Sweden), T Kjellsson Lindblom (Tokyo, Japan), M Førre (Bergen, Norway), S Selstø (Oslo, Norway)  
15:35 – 16:05    *Solving the Time-Dependent Dirac Equation* (invited talk)

### Wednesday, 18 July, 2018

#### S2.6 (11:15 – 12:30)

**Chair:** Carla Figueira De Morisson Faria (UK)

- S2.6.1**      G Karras, A Marciniak, V Lorient, A Scognamiglio, M Herve  
11:15 – 11:45    (Villeurbanne, France), R Taïeb (Paris, France), P Salières (Gif Sur Yvette, France), E Constant, F Lepine (Villeurbanne, France)  
*Blue Rabbitt and Signature of Macroscopic Effects in Attosecond Photoionization Gas Phase Experiments* (invited talk)
- S2.6.2**      K Liu, I Barth (Halle, Germany)  
11:45 – 12:05    *Drifted Ionization Times of Atomic Current-Carrying Orbitals in Elliptically Polarized Laser Fields*
- S2.6.3**      V V Strelkov (Moscow, Russia), V A Birulia (Dolgoprudny, Russia; Moscow, Russia), A I Magunov (Mendeleevo, Russia; Moscow, Russia)  
12:05 – 12:30    *Attosecond Metrology Using Two-Photon Resonant Raman-Type Transition* (invited talk)

#### S2.7 (14:00 – 16:00)

**Chair:** Christoph H. Keitel (Germany)

- S2.7.1**      G Sansone (Freiburg, Germany)  
14:00 – 14:30    *Attosecond Pulses Using a Seeded FEL* (invited talk)
- S2.7.2**      A S Johnson (Barcelona, Spain), D R Austin, D Wood (London, UK), C Brahms (Edinburgh, UK), A Gregory, K Holzner, S Jarosch, E Larsen, S Parker (London, UK), C S Strüber (Berlin, Germany), P Ye (Szeged, Hungary), J W G Tisch, J P Marangos (London, UK)  
14:30 – 14:55    *High-Flux Soft X-Ray Attosecond Pulse Generation in the Overdriven Limit* (invited talk)
- S2.7.3**      M Ruberti (London, UK), P Decleva (Trieste, Italy), M Khokhlova, V Averbukh (London, UK)  
14:55 – 15:25    *Time Dependent B-Spline ADC: Many-Electron Theory for Attosecond Electron Dynamics in Strong Laser Fields* (invited talk)

**S2.7.4**      T Morishita (Tokyo, Japan), O I Tolstikhin (Moscow, Russia)  
 15:25 – 15:55    *Adiabatic Theory of Strong-Field Photoelectron Momentum Distributions Near a Backward Rescattering Caustic* (invited talk)

### S2.8 (16:30 – 18:30)

**Chair:** Ulli Eichmann (Germany)

**S2.8.1**      T Steinle, K Amini, B Wolter, A Sanchez, X Liu, M Sclafani, M Pullen (Barcelona, Spain), A T Lee (Manhattan KS, USA), K Doblhoff-Dier (Leiden, The Netherlands), A Senftleben (Kassel, Germany), C D Schröter (Heidelberg, Germany), M Hemmer (Barcelona, Spain), J Ullrich (Braunschweig, Germany), T Pfeifer, R Moshhammer (Heidelberg, Germany), S Gräfe (Jena, Germany), O Vendrell (Aarhus, Denmark), C D Lin (Manhattan KS, USA), J Biegert (Barcelona, Spain)  
 16:30 – 16:55    *Imaging Molecular Structural Changes with One Electron* (invited talk)

**S2.8.2**      S Chatterjee (Kyoto, Japan; Gangtok, India), T Nakajima (Kyoto, Japan)  
 16:55 – 17:10    *X-Ray Induced Interference of Auger Electrons in the Common Continuum of Multiple Core-Excited States* (invited talk)

**S2.8.3**      M Khokhlova, B Cooper (London, UK), P Kolorenč (Prague, Czech Republic), M Ivanov (Berlin, Germany; London, UK), V Averbukh (London, UK)  
 17:10 – 17:25    *Coherent Control of Auger Decay*

**S2.8.4**      A S Maxwell, A Al-Jawahiry (London, UK), X Y Lai (Wuhan, China), C Figueira de Morisson Faria (London, UK)  
 17:25 – 17:50    *Recolliding Quantum Orbits in Photoelectron Holography Beyond the Strong-Field Approximation* (invited talk)

**S2.8.5**      A S Maxwell, C Faria (London, UK), S V Popruzhenko (Dresden, Germany; Voronezh, Russia)  
 17:50 – 18:20    *Treating Branch Cuts in Quantum Trajectory Models for Photoelectron Holography*



**Thursday, 19 July, 2018****S2.9 (10:30 – 12:30)****Chair:** Sergey Popruzhenko (Russia)

- S2.9.1** J M Ngoko Djiokap, A F Starace (Lincoln NE, USA)  
10:30 – 10:55 *Doubly-Excited State Effects on Two-Photon Double Ionization of Helium by Time-Delayed, Oppositely Circularly-Polarized Attosecond Pulses* (invited talk)
- S2.9.2** A V Bogatskaya, A M Popov (Moscow, Russia)  
10:55 – 11:15 *New Approach to the Problem of THz Generation by Intense Two-Colour Laser Fields*
- S2.9.3** A Emmanouilidou (London, UK)  
11:15 – 11:45 *Nucleus-Assisted Non-Sequential Double Ionization as a Gate to Anti-Correlated Two Electron Escape* (invited talk)
- S2.9.4** A Gazibegović-Busuladžić, M Busuladžić, A Čerkić, E Hasović (Sarajevo, Bosnia and Herzegovina), W Becker (Berlin, Germany; Moscow, Russia), D B Milošević (Berlin, Germany; Sarajevo, Bosnia and Herzegovina)  
11:45 – 12:10 *Strong-Field Ionization of Linear Molecules by a Bichromatic Elliptically Polarized Laser Field with Coplanar Counterrotating or Corotating Components of Different Frequencies* (invited talk)
- S2.9.5** J Z Kaminski, F Cajiao Velez, K Krajewska (Warsaw, Poland)  
12:10 – 12:30 *Coulomb-Corrected Strong Field Approximation Without Singularities and Branching Points* (invited talk)

**S2.10 (14:00 – 16:00)****Chair:** Anthony F Starace (USA)

- S2.10.1** W Becker (Berlin, Germany; Moscow, Russia), D B Milošević (Berlin, Germany; Sarajevo, Bosnia and Herzegovina)  
14:00 – 14:25 *Channel-Closing Effects in Multiphoton and Tunneling Ionization by a Bicircular Laser Field* (invited talk)
- S2.10.2** D K Efimov (Kraków, Poland), J H Thiede (Marburg, Germany), A Maksymov, J S Prauzner-Bechcicki (Kraków, Poland), A Chacon (Los Alamos NM, USA; Barcelona, Spain), B Eckhardt (Marburg, Germany), M Lewenstein (Barcelona, Spain), J Zakrzewski (Kraków, Poland)  
14:25 – 14:45 *Strong Field Atomic Ionization: from Two- to Three-Electron Models* (invited talk)

- S2.10.3**      A S Kornev, V E Chernov, K I Suvorov, B A Zon (Voronezh, Russia)  
14:45 – 15:05    *Laser-Induced Deformation of Triatomic Molecules: Influence on Tunnel Ionization*
- S2.10.4**      S V Popruzhenko (Dresden, Germany), V A Tulskey (Rostock, Germany), M Bagheri, U Saalman (Dresden, Germany)  
15:05 – 15:30    *Terahertz Radiation from Atomic Gases Driven by Intense Circularly Polarized Mid-Infrared Laser Pulses* (invited talk)
- S2.10.5**      S Varró (Budapest, Szeged, Hungary)  
15:30 – 15:55    *Symmetric Entangled Coherent States Yield Ideal Quantum Attosecond Pulses* (invited talk)

### S2.11 (16:30 – 19:30)

**Chair:** Katarzyna Krajewska (Poland)

- S2.11.1**      M Klaiber, K Z Hatsagortsyan, C H Keitel (Heidelberg, Germany)  
16:30 – 16:50    *Under-the-Tunneling-Barrier Quantum Dynamics in Strong-Field Ionization* (invited talk)
- S2.11.2**      P-L He (Heidelberg, Germany; Shanghai, China), M Klaiber, K Z Hatsagortsyan, C H Keitel (Heidelberg, Germany)  
16:50 – 17:15    *Origin of High Energy Enhancement of Photoelectron Spectra in Tunneling Ionization* (invited talk)
- S2.11.3**      X Wang (Beijing, China), J Tian, J H Eberly (Rochester NY, USA)  
17:15 – 17:35    *Longitudinal Momentum of the Electron at the Tunneling Exit* (invited talk)
- S2.11.4**      R Kienberger (Garching, Germany)  
17:35 – 18:00    *Measuring the Absolute Time Delay of Photoelectrons from Solids* (invited talk)
- S2.11.5**      Y Y Chen (Heidelberg, Germany), J X Li (Xi'an, China), K Z Hatsagortsyan, C H Keitel (Heidelberg, Germany)  
18:00 – 18:20    *Gamma-Ray Beams with Large Orbital Angular Momentum via Nonlinear Compton Scattering with Radiation Reaction*
- S2.11.6**      C P Schulz, F Schell, T Bredmann, S Patchkovskii, M J J Vrakking, J Mikosch (Berlin, Germany)  
18:20 – 18:45    *Laser-Driven Electron Rescattering in the Molecular Frame: Separation of Strong-Field Ionization Continua* (invited talk)
- S2.11.7**      A S Wyatt (Oxford, UK; Didcot, UK), P Matía-Hernando (London, UK), A S Johnson (London, UK; Barcelona, Spain), R T Chapman (Didcot, UK), D R Austin, J P Marangos, J W G Tisch (London, UK), E Springate (Didcot, UK)  
18:45 – 19:15    *Few Cycle Optical Parametric Amplification in the MIR* (invited talk)

**Friday, 20 July, 2018****S2.12 (09:15 – 10:45)****Chair:** Eric Constant (France)

- S2.12.1** V A Tulsy, M A Almajid, D Bauer (Rostock, Germany)  
09:15 – 09:35 *Revealing Coherent Information from a Photoelectron Spectrum of a Complex Target*
- S2.12.2** D Komar, J Passig (Rostock, Germany), S Zherebtsov (Garching, Germany), R Irsig, M Arbeiter, C Peltz (Rostock, Germany), S Göde (Hamburg, Germany), S Skruszewicz (Jena, Germany), L Kazak, M Almassaraini (Rostock, Germany), M F Kling (Garching, Germany), T Fennel, J Tiggesbäumker, K H Meiwes-Broer (Rostock, Germany)  
09:35 – 10:00 *Coulomb Explosion of Metal Clusters*
- S2.12.3** S Biswas (Garching, Germany)  
10:00 – 10:30 *Photoemission Delay at Giant Resonances in Molecules* (invited talk)

**S2.13 (11:15 – 12:30)****Chair:** Giuseppe Sansone (Germany)

- S2.13.1** J Daněk, K Z Hatsagortsyan, C H Keitel (Heidelberg, Germany)  
11:15 – 11:35 *Coulomb Focusing Beyond the Dipole Limit in Strong-Field Ionization*
- S2.13.2** D Hanstorp (Gothenburg, Sweden)  
11:35 – 12:05 *Laser Spectroscopy of Negative Ions* (invited talk)
- S2.13.3** K F Mak (Garching, Germany), Q Wang (Garching, Germany; Beijing, China), J Zhang, N Nagl, V Pervak, F Krausz, O Pronin (Garching, Germany)  
12:05 – 12:30 *Multi-Octave-Spanning Simultaneous Infrared Coverage Driven by Emerging 2  $\mu$ m Laser Technologies* (invited talk)

**S2.14 (14:00 – 16:00)**

- S2.14.1** T Ozaki (Varennes, Canada)  
14:30 – 14:55 *High-Order Harmonics and the Autoionizing State*

## Seminar 3: Laser Biomedical Applications

### Co-Chairs

<b>Thomas Bocklitz</b>	Institute of Physical Chemistry and Abbe Center of Photonics, Jena, Germany
<b>Ekaterina Borisova</b>	Institute of Electronics, Sofia, Bulgaria
<b>Edik U Rafailov</b>	Aston Institute of Photonic Technologies, Birmingham, UK

**Monday, 16 July, 2018**

### **S3.1 (11:15 – 12:30)**

**Chairs:** Tatiana Mogilnaya (Russia) and Sergei Sokolovski (UK)

- S3.1.1** 11:15 – 11:45 B Gauthier-Manuel, R Kateklum, B Wacogne (Besançon, France)  
*Calibration Free Fluorescence pH Fiber Optic Microsensor* (invited talk)
- S3.1.2** 11:45 – 12:15 P Piredda, B Chassard, R Venkatnarayan, A Volkmer (Stuttgart, Germany)  
*Subcellular Quantification of Nucleic Acids by Raman Microspectroscopy Imaging* (invited talk)
- S3.1.3** 12:15 – 12:30 A S Kuryanova, M A Savko, V A Zolottsev, G V Ponomarev, N A Aksenova, A B Solovieva (Moscow, Russia)  
*Photocatalytic Activity Solubilizing Pluronic F-127 Is a Steroid Derived Pyrophephorbide a*

### **S3.2 (14:00 – 16:00)**

**Chairs:** Ekaterina Borisova (Bulgaria) and Bruno Wacogne (France)

- S3.2.1** 14:00 – 14:30 Z Harman, C Lyu, S M Cavaletto, C H Keitel (Heidelberg, Germany)  
*Laser-Produced High-Quality X-Ray Beams for Medical Purposes* (invited talk)
- S3.2.2** 14:30 – 15:00 A Bicer, E Aluauee, J Bounds, F Zhu, A A Kolomenski (College Station, TX, USA), M Amani, L J Fernyhough (Doha, Qatar), H A Schuessler (Doha, Qatar; College Station, TX, USA)  
*Spectroscopic Detection of Biomarkers in Exhaled Breath* (invited talk)

**S3.2.3**                    S Sokolovski (Birmingham, UK), O Semyachkina-Glushkovskaya  
 15:00 – 15:30            (Saratov, Russia), E Rafailov (Birmingham, UK)  
*Emerging Photodynamics Applications in Red and Near Infrared  
 Spectrum: Cancer Treatment, Blood Brain Barrier Opening and  
 Neuronal Photobiomodulation* (invited talk)

**S3.2.4**                    G P Tassi (Rome, Italy)  
 15:30 – 15:50            *The Percutaneous Laser Disc Decompression for Slipped Disc  
 According to the Choy's Method: Personal Experience on 4,000  
 Patients and Long Follow Up*

### **S3.3 (16:30 – 18:30)**

**Chairs:** Zoltan Harman (Germany) and Andreas Volkmer (Germany)

**S3.3.1**                    T Yu Moguilnaya, A G Botikov, A M Vasilev (Moscow, Russia)  
 16:30 – 17:00            *Application Of The Coherent Spectroscopy Method For The Study  
 Of Biosensor Test Systems Based On Nanomarkers* (invited talk)

**S3.3.2**                    E Borisova, Ts Genova-Hristova (Sofia, Bulgaria), J Spigulis, I  
 17:00 – 17:30            Lihachova, I Kuzmina, V Luikinsone (Riga, Latvia), N Penkov,  
I Terziev, P Troyanova, L Avramov (Sofia, Bulgaria)  
*Skin Cancer Detection Using Steady-State and Time-Resolved  
 Fluorescence Techniques* (invited talk)

**S3.3.3**                    O V Khasanova, N A Aksenova, V A Timofeeva, T S Zarkhina, N  
 17:30 – 17:50            N Glagolev, A B Solovieva (Moscow, Russia)  
*Photocatalytic Activity of Chlorine Complexes with  
 Polyvinylpyrrolidon and Polysaccharides as Agents for Antibacterial  
 Photodynamic Therapy*

## Seminar 4: Physics of Lasers

### Co-Chairs

<b>Mikhail Kalashnikov</b>	Max-Born-Institut, Berlin, Germany
<b>Rajeev Pattathil</b>	Central Laser Facility, Swindon, UK
<b>Andrei B. Savel'ev</b>	Lomonosov Moscow State University, Moscow, Russia
<b>Ivan A. Shcherbakov</b>	A.M. Prokhorov General Physics Institute, Moscow, Russia

**Wednesday, 18 July, 2018**

***S4.1 (16:30 – 18:30)***

**Chair:** Olga Kosareva (Russia)

- S4.1.1***      B Alonso (Porto, Portugal), J Pérez-Vizcaíno, G Mínguez-Vega (Castellón de la Plana, Spain), I J Sola (Salamanca, Spain)  
 16:30 – 16:45      *Tailoring the Spatio-Temporal Distribution of Diffractive Focused Ultrashort Pulses Through Pulse Shaping*
- S4.1.2***      A Pirri, G Toci (Sesto Fiorentino, Italy), B Patrizi (Florence, Italy), R N Maksimov, V V Osipov, V A Shitov, A S Yurovskikh (Ekaterinburg, Russia), M Vannini (Sesto Fiorentino, Italy)  
 16:45 – 17:00      *Spectroscopic Properties and Laser Performance of 3 at.% Yb:Y<sub>2</sub>O<sub>3</sub> and 6 at.% Yb:LuY<sub>2</sub>O<sub>3</sub> Ceramics*
- S4.1.3***      V B Morozov, A N Olenin, D V Yakovlev (Moscow, Russia)  
 17:00 – 17:20      *High Peak-Power Picoseconds Laser Pulses Generation at Aberrational Lens and Gain Saturating*

## Seminar 5: Nonlinear Optics & Spectroscopy

### Co-Chairs

<b>Yuri Kivshar</b>	Australian National University, Canberra, Australia
<b>Olga G. Kosareva</b>	Lomonosov Moscow State University, Moscow, Russia
<b>Vladimir A. Makarov</b>	International Laser Center, Moscow, Russia

**Monday, 16 July, 2018**

**S5.1 (11:15 – 12:30)**

**Chair:** Vladimir Makarov (Russia)

<b>S5.1.1</b> 11:15 – 11:40	<u>A Mysyrowicz</u> , R Danylo, A Houard (Palaiseau, France), V Tikhonchuk (Bordeaux, France), X Zhang, Z Fan, Q Liang, S Zhuang, Y Liu (Shanghai, China) <i>Lasing Without Population Inversion in Air</i> (invited talk)
<b>S5.1.2</b> 11:40 – 12:05	<u>A Couairon</u> (Palaiseau, France), M Lamperti (Como, Italy), V Jukna (Vilnius, Lithuania), O Jedrkiewicz, P Di Trapani (Como, Italy), R Stoian, T Itina (Saint-Etienne, France), C Xie, F Courvoisier (Besançon, France) <i>Filamentary Deposition of Laser Energy in Glasses with Bessel Beams</i> (invited talk)
<b>S5.1.3</b> 12:05 – 12:30	<u>S Tzortzakis</u> (Heraklion, Greece; Doha, Qatar) <i>Extreme THz Fields From Laser Filaments</i> (invited talk)

**S5.2 (14:00 – 16:00)**

**Chair:** André Mysyrowicz (France)

<b>S5.2.1</b> 14:00 – 14:25	<u>G Steinmeyer</u> (Berlin, Germany) <i>Intrapulse Coherence of Laser Filaments</i> (invited talk)
<b>S5.2.2</b> 14:25 – 14:50	<u>A Houard</u> (Palaiseau, France) <i>Femtosecond Laser Filament as a Supersonic Spike</i>
<b>S5.2.3</b> 14:50 – 15:15	<u>P Polynkin</u> (Tucson AZ, USA) <i>In-Line Spectral Interferometry in Infrared Laser Filaments in Gases</i> (invited talk)
<b>S5.2.4</b> 15:15 – 15:40	<u>Y Liu</u> (Shanghai, China) <i>Resonance-Enhanced Harmonics from Air Plasma Pumped by Mid-Infrared Femtosecond Pulses</i> (invited talk)

**S5.2.5** 15:40 – 16:00 O G Kosareva, D E Shipilo, N A Panov, D A Urgapov (Moscow, Russia), V A Andreeva (Minneapolis MN, USA), A M Saletsky (Moscow, Russia), P Polynkin (Tucson AZ, USA), S L Chin (Québec City, Canada)  
*Nonlinearly Enhanced Linear Absorption and Raman Redshift for Infrared Filamentation in Atmospheric Air* (invited talk)

### S5.3 (16:30 – 18:30)

**Chair:** Stelios Tzortzakis (Greece)

**S5.3.1** 16:30 – 16:50 V G Arakcheev, A N Bekin, V B Morozov (Moscow, Russia)  
*Spectroscopic Characterization of Surface Adsorbate and Liquid Clusters in Small Mesopores* (invited talk)

**S5.3.2** 16:50 – 17:10 A Dogariu (Princeton NJ, USA)  
*Standoff Detection and Optical Diagnostics via Coherent Raman Spectroscopy*

**S5.3.3** 17:10 – 17:35 A Nguyen, L Bergé (Arpajon, France), P González de Alaiza Martínez (Talence, France), I Thiele (Göteborg, Sweden), S Skupin (Villeurbanne, France)  
*Production of THz Radiation from Mid- and Far-Infrared Two-Color Femtosecond Pulses in Air* (invited talk)

**S5.3.4** 17:35 – 18:00 I Thiele, E Siminos, T Fülöp (Gothenburg, Sweden)  
*Generation of Intense Mid-Infrared Sub-Cycle Pulses by Electron Beam Driven Amplification of THz Radiation* (invited talk)

**S5.3.5** 18:00 – 18:20 A Popov, A V Bogatskaya (Moscow, Russia)  
*Generation and Amplification of the THz Radiation by Intense Two-Color Laser Fields* (invited talk)

**S5.3.6** 18:20 – 18:35 V I Kovalev (Moscow, Russia; Edinburgh, UK)  
*Peculiarities of the Pump-Probe Technique for Brillouin Scattering Spectroscopy*

## Tuesday, 17 July, 2018

### S5.4 (11:15 – 12:30)

**Chair:** Günter Steinmeyer (Germany)

**S5.4.1** 11:15 – 11:40 J-P Wolf (Geneva, Switzerland)  
*Bound States of Free Electrons* (invited talk)

**S5.4.2** 11:40 – 12:05 C M Heyl (Hamburg, Germany; Jena, Germany)  
*mW-Level Extreme Ultraviolet Frequency Combs* (invited talk)



**S5.4.3**      C L Arnold, S Mikaelsson (Lund, Sweden), M Miranda (Porto, Portugal), C Guo, Y-C Cheng (Lund, Sweden), A Harth (Heidelberg, Germany), J Vogelsang, L Rämisch (Lund, Sweden), A Pape, T Binhammer, U Morgner (Hannover, Germany), M Gisselbrecht, A L'Huillier (Lund, Sweden)  
 12:05 – 12:30      *Spatiotemporal Characterization and Optimization of a High Repetition Rate OPCPA Laser for Applications in Attosecond Science* (invited talk)

### **S5.5 (14:00 – 16:00)**

**Chair:** Arnaud Couairon (France)

**S5.5.1**      P Dombi (Budapest, Hungary)  
 14:00 – 14:25      *Ultrasensitive Near-Field Probing with Ultrafast Nonlinear Photoemission* (invited talk)

**S5.5.2**      G Duchateau, E Smetanina, B Chimier, A Bourgeade, R Beuton, S Coudert, P Gonzales, C Mezel, L Barilleau, N Fedorov, P Martin, G Geoffroy, V Tikhonchuk (Talence, France)  
 14:25 – 14:50      *Modeling of the Electron Dynamics in Realistic Dielectric Materials Induced by Femtosecond Laser Pulses* (invited talk)

**S5.5.3**      W Liu, N Zhang, D Lu (Tianjin, China)  
 14:50 – 15:15      *Multi-Color Laser Generation in Glass by Femtosecond Laser Filamentation* (invited talk)

**S5.5.4**      E E Orlova (Leeds, UK; Nizhny Novgorod, Russia), O G Kosareva, P M Solyankin, A A Angeluts, I A Ozheredov, A V Balakin, V A Andreeva, N A Panov (Moscow, Russia), A Lee (San Jose, USA), A P Shkurinov (Moscow, Russia)  
 15:15 – 15:40      *Shaping the Beam of Subwavelength Wire Lasers* (invited talk)

**S5.5.5**      D E Shipilo, N A Panov (Moscow, Russia), W Liu, Q Su, D Lu (Tianjin, China), A B Savel'ev, O G Kosareva (Moscow, Russia)  
 15:40 – 15:55      *Phase Barrier for Electron Density Enhancement in Femtosecond Filamentation*

**S5.5.6**      D V Mokrousova (Moscow, Russia), G E Rizaev, A V Shalova (Dolgoprudny, Russia; Moscow, Russia), D E Shipilo, N A Panov, E S Sunchugasheva, L V Seleznev, O G Kosareva, A A Ionin (Moscow, Russia)  
 15:55 – 16:10      *Third Harmonic Yield Enhancement by Several Beams Fusion*

**Wednesday, 18 July, 2018****S5.6 (11:15 – 12:30)****Chair:** Pavel Polynkin (USA)

- S5.6.1** T-J Wang (Shanghai, China)  
11:15 – 11:40 *New Effects of Femtosecond Laser Filament Interaction with High Voltage Coronas* (invited talk)
- S5.6.2** H Xu (Changchun, China)  
11:40 – 12:05 *Remote Fabrication of Black Silicon Using Femtosecond Laser Filaments* (invited talk)
- S5.6.3** B Alonso (Salamanca, Spain; Porto, Portugal), E Conejero-Jarque, J San Román (Salamanca, Spain), F Silva, R Romero (Porto, Portugal), W Holgado, M A Gonzalez-Galicia (Salamanca, Spain), H Koop, V Pervak (Garching, Germany), I J Sola (Salamanca, Spain), H Crespo (Porto, Portugal)  
12:05 – 12:30 *Generation and Measurement of Intense Single-Cycle Pulses with In-Line Post-Compression Setups* (invited talk)

**S5.7 (14:00 – 16:00)****Chair:** Alexander Popov (Russia)

- S5.7.1** L Bergé, J Déchard, A Debayle, X Davoine, L Gremillet (Arpajon, France)  
14:00 – 14:25 *THz Field Generation by Relativistic Plasmas Created by Two-Color Laser Pulses* (invited talk)
- S5.7.2** D V Skryabin (Bath, UK)  
14:25 – 14:50 *Putting Lugiato-Lefever Approach into the Context of Frequency Comb Generation* (invited talk)
- S5.7.3** V A Trofimov, T M Lysak, A A Svintsov (Moscow, Russia)  
14:50 – 15:15 *Possibility of a Femtosecond Pulse Propagation in a Nonlinear Chirped Soliton Mode in a Medium with Induced Photoluminescence* (invited talk)
- S5.7.4** S Yuan, R L Wang, F Q Zhou, H P Zeng (Shanghai, China)  
15:15 – 15:40 *Filamentation in Aqueous Gold Nano-Particle Colloids* (invited talk)
- S5.7.5** E S Sunchugasheva, A A Ionin (Moscow, Russia), D V Mokrousova (Dolgoprudny, Russia; Moscow, Russia), L V Seleznev, A V Shutov, D V Sinityn (Moscow, Russia)  
15:40 – 15:55 *Double UV Ultrashort Pulses Propagation in Atmospheric Humid Air*

**S5.7.6**

15:55 – 16:10

A V Shutov, D V Mokrousova (Moscow, Russia), V Yu Fedorov (Doha, Qatar), A V Shalova, G E Rizaev, L V Seleznev, V D Zvorykin (Moscow, Russia), S Tzortzakis (Heraklion, Greece; Doha, Qatar), A A Ionin (Moscow, Russia)

*Water Vapor Driven Filamentation of 248-nm Laser Pulses in Ambient Air*

## Seminar 6: Physics of Cold Trapped Atoms

### Co-Chairs

<b>Vanderlei S. Bagnato</b>	University of São Paulo, São Carlos, SP, Brazil
<b>Vyacheslav I. Yukalov</b>	Joint Institute for Nuclear Research, Dubna, Moscow Region, Russia

**Monday, 16 July, 2018**

**S6.1 (11:15 – 12:30)**

**Chair:** Boris Svistunov (USA)

**S6.1.1** 11:15 – 11:45 J L Bohn, M Sze (Boulder CO, USA), D Blume (Norman, OK, USA), A G Sykes (Wellington, New Zealand)  
*Ground State of the Trapped Unitary Bose Gas*

**S6.1.2** 11:45 – 12:15 L Liu, Y Deng (Hefei, China), A Kuklov (New York NY, USA)  
*Criticality of the Bose Einstein Condensation of S=1 Spinor Atoms*

**S6.1.3** 12:15 – 12:30 A Uchiyama, K Harada (Sendai, Japan), T Inoue (Wako, Japan), H Kawamura, K S Tanaka, M Itoh (Sendai, Japan), T Aoki, A Hatakeyama (Tokyo, Japan), Y Takahashi (Kyoto, Japan), Y Sakemi (Tokyo, Japan)  
*Development of a Dual Isotope Co-Magnetometer Using Laser Cooled Rubidium Toward Electron Electric Dipole Moment Measurement Using Francium*

**S6.2 (14:00 – 16:00)**

**Chairs:** John Bohn (USA) and Anatoly Kuklov (USA)

**S6.2.1** 14:00 – 14:30 N Proukakis (Newcastle upon Tyne, UK)  
*Dynamical Equilibration and Critical Exponents in Quenched Quantum Gases*

**S6.2.2** 14:30 – 15:00 D Dung, C Kurtscheid (Bonn, Germany), J Schmitt (Cambridge, UK), T Damm, F Vewinger (Bonn, Germany), J Klärs (Enschede, The Netherlands), M Weitz (Bonn, Germany)  
*Variable Potentials for Thermalized Light and Coupled Condensates*

**S6.2.3** 15:00 – 15:30 V Fleurov (Tel-Aviv, Israel), L Cederbaum (Heidelberg, Germany)  
*Photon-Photon Interaction Mediated by Entangled Two Level Systems*

**S6.2.4** 15:30 – 16:00 O E Alon (Haifa, Israel)  
*Variance of a Trapped Bose-Einstein Condensate*

**S6.3 (16:30 – 18:30)****Chairs:** Ofir E. Alon (Israel) and Georgy Shlyapnikov (France)

- S6.3.1**            S K Haldar, O E Alon (Haifa, Israel)  
16:30 – 17:00    *Many-Body Quantum Dynamics of a Bosonic Josephson Junction with a Finite-Range Interaction*
- S6.3.2**            D Giambastiani, M Barsanti, M L Chiofalo (Pisa, Italy)  
17:00 – 17:30    *Interaction-Range Effects and Universality in the BCS-BEC Crossover of Spin-Orbit Coupled Fermi Gases*
- S6.3.3**            A Amico, F Scazza (Florence, Italy), P E S Tavares (Florence, Italy; São Paulo, Brazil), G Valtolina (Florence, Italy; Boulder CO, USA), G Del Pace, W Kwon, M Inguscio, M Zaccanti, G Roati (Florence, Italy)  
17:30 – 18:00    *Time Resolved Study of Competing Instabilities on a Fermi Gas Quenched to Strong Repulsion*

**Tuesday, 17 July, 2018****S6.4 (11:15 – 12:30)****Chair:** Nick Proukakis (UK)

- S6.4.1**            C A R Sa de Melo (Atlanta GA, USA)  
11:15 – 11:45    *Unconventional Color Superfluidity Without Quarks: Ultra-Cold Fermions in the Presence of Color-Orbit and Color-Flip Fields*
- S6.4.2**            Y Castin, A Sinatra (Paris, France), H Kurkjian (Antwerpen, Belgium)  
11:45 – 12:10    *Landau Phonon-Roton Theory Revisited for Superfluid Helium 4 and Fermi Gases*
- S6.4.3**            F Mivehvar, S Ostermann (Innsbruck, Austria), F Piazza (Dresden, Germany), H Ritsch (Innsbruck, Austria)  
12:10 – 12:30    *Driven-Dissipative Supersolid in a Ring Cavity*

**S6.5 (14:00 – 16:00)****Chairs:** Yvan Castin (France) and Klaus Ziegler (Germany)

- S6.5.1**            G V Shlyapnikov (Moscow, Russia; Orsay, France)  
14:00 – 14:30    *Superfluidity of Supersolids*
- S6.5.2**            S Laurent, X Leyronas, F Chevy (Paris, France)  
14:30 – 15:00    *Momentum Distribution of a Dilute Unitary Bose Gas with Three-Body Losses*

- S6.5.3**      A Sinatra, Y Castin (Paris, France)  
15:00 – 15:30    *Coherence Time of a Bose-Einstein Condensate in an Isolated Harmonically Trapped Gas*
- S6.5.4**      A Simoni (Rennes, France)  
15:30 – 16:00    *Fitting Ultracold Resonances Without a Fit*

### Wednesday, 18 July, 2018

#### S6.6 (11:15 – 12:30)

**Chair:** Vittorio Penna (Italy)

- S6.6.1**      V S Bagnato (São Carlos, Brazil)  
11:15 – 11:45    *Quantum Turbulence in a Trapped BEC: Properties Obtained from a Free Expansion*
- S6.6.2**      M Guilleumas, A Escrivà, B Juliá-Díaz (Barcelona, Spain)  
11:45 – 12:10    *Vortex Dynamics Between Two Coupled Atomtronic Circuits*
- S6.6.3**      K Ziegler (Augsburg, Germany), E Barkai (Ramat Gan, Israel)  
12:10 – 12:30    *Repeated Measurements on Interacting Quantum Systems*

#### S6.7 (14:00 – 16:00)

**Chairs:** Vanderlei S. Bagnato (Brazil) and Muntsa Guilleumas (Spain)

- S6.7.1**      B V Svistunov, N V Prokof'ev (Amherst MA, USA)  
14:00 – 14:30    *Algebraic Time Crystalization in a Two-Dimensional Superfluid*
- S6.7.2**      K Sacha, K Giergiel (Kraków, Poland), A Miroszewski (Warsaw, Poland)  
14:30 – 15:00    *Time Crystal Platform*
- S6.7.3**      K Giergiel, A Kosior (Kraków, Poland), P Hannaford (Melbourne, Australia), K Sacha (Kraków, Poland)  
15:00 – 15:30    *Building Time Crystals with Ultracold Atoms*
- S6.7.4**      D Cohen (Beer-Sheva, Israel)  
15:30 – 16:00    *Strong Localization and the Exploration of Phase Space in Quantum Thermalization*

#### S6.8 (16:30 – 18:30)

**Chairs:** Doron Cohen (Israel) and Peter Hannaford (Australia)

- S6.8.1**      A Cappellaro (Padua, Italy), T Macri (Natal, Brazil), L Salasnich (Padua, Italy)  
16:30 – 17:00    *Collective Modes Across the Soliton-Droplet Crossover in Binary Bose Mixtures*

- S6.8.2**      K Das (Kutztown PA, USA; Stony Brook NY, USA)  
17:00 – 17:30    *Gauge Structures and Wilson Loops with Internal and External States*
- S6.8.3**      J L Helm (Dunedin, New Zealand), S Ghosh, B Gremaud, C Miniatura (Singapore, Singapore), D A W Hutchinson (Dunedin, New Zealand)  
17:30 – 17:50    *Momentum Space Signatures of Anderson Localisation*
- S6.8.4**      E Neri, A Trenkwalder, C Simonelli, M Inguscio, M Zaccanti (Florence, Italy)  
17:50 – 18:15    *A Novel Chromium-Lithium Ultracold Fermi Mixture*

### Thursday, 19 July, 2018

#### S6.9 (10:30 – 12:30)

**Chairs:** Zoran Hadzibabic (UK) and Luca Salasnich (Italy)

- S6.9.1**      C F Barenghi, L Galantucci (Newcastle upon Tyne, UK), S Serafini, G Ferrari, G Lamporesi, F Dalfovo (Trento, Italy), N G Parker, A W Baggaley (Newcastle upon Tyne, UK)  
10:30 – 11:00    *Vortex Reconnections in Atomic Bose-Einstein Condensates*
- S6.9.2**      N Navon (New Haven CT, USA), C Eigen, J Zhang (Cambridge, UK), R Lopes (Paris, France), A Gaunt (Cambridge, UK), K Fujimoto (Tokyo, Japan), M Tsubota (Osaka, Japan), R Smith (Oxford, UK), Z Hadzibabic (Cambridge, UK)  
11:00 – 11:30    *Synthetic Dissipation and Cascade Fluxes in a Turbulent Quantum Gas*
- S6.9.3**      N G Parker, T Bland, A W Baggaley (Newcastle upon Tyne, UK)  
11:30 – 12:00    *Quantum Ferrofluids Flex Their Muscles: Solitons, Vortices and Turbulence*
- S6.9.4**      J Tempere, S N Klimin, W Van Alphen, S Van Loon (Antwerpen, Belgium)  
12:00 – 12:30    *Solitons as Probes of Collective Modes in a Superfluid Fermi Gas*

#### S6.10 (14:00 – 16:00)

**Chairs:** Carlo Barenghi (UK) and Jacques Tempere (Belgium)

- S6.10.1**      J Schmitt, P Christodoulou, M Galka, J Man (Cambridge, UK), R Lopes (Cambridge, UK; Paris, France), R P Smith, Z Hadzibabic (Cambridge, UK)  
14:00 – 14:10    *A Two-Dimensional Box Trap for Ultracold 39K Atoms with Tuneable Interactions*

- S6.10.2**      V A Yurovsky (Tel-Aviv, Israel)  
14:10 – 14:40    *Coherence Time Prolongation in Definite Total Spin States of One-Dimensional Spinor Bose Gases*
- S6.10.3**      V Penna, A Richaud (Turin, Italy)  
14:40 – 15:05    *Spatial Phase Separation of a Binary Mixture in a Ring Trimer*
- S6.10.4**      J Polo (Grenoble, France), V Ahufinger (Bellaterra, Spain), F W J Hekking, A Minguzzi (Grenoble, France)  
15:05 – 15:30    *Damping of Josephson Oscillations in Strongly Correlated One-Dimensional Atomic Gases*
- S6.10.5**      M Łącki (Kraków, Poland), M A Baranov (Innsbruck, Austria), H Pichler (Cambridge MA, USA; Innsbruck, Austria), Y Wang, S Subhankar, P Bienias, T-C Tsui, J.V Porto, S L Rolston, A V Gorshkov (College Park MD, USA), P Zoller (Innsbruck, Austria)  
15:30 – 16:00    *Dark State Optical Lattice with Sub-Wavelength Spatial Structure*



## Seminar 7: Quantum Information Science

### Co-Chairs

<b>Gerardo Adesso</b>	University of Nottingham, Nottingham, UK
<b>Marco Genovese</b>	L'Istituto Nazionale di Ricerca Metrologica , Turin, Italy
<b>Sergei P. Kulik</b>	Lomonosov Moscow State University, Moscow, Russia
<b>Leong Chuan Kwek</b>	Center for Quantum Technologies, Singapore, Singapore

**Monday, 16 July, 2018**

**S7.1 (11:15 – 12:30)**

**Chair:** Marco Genovese (Italy)

- S7.1.1** 11:15 – 11:40 A Wojciechowski, M Karadas, S Ahmadi, H El-Ella, L Frellsen, J Webb, A Thielscher, N O Dalby, A Huck, U L Andersen (Kongens Lyngby, Denmark)  
*Quantum Magnetometry Using Nitrogen-Vacancy Centers in Diamond* (invited talk)
- S7.1.2** 11:40 – 12:10 K-K Park (Pohang, South Korea), Y-W Cho (Seoul, South Korea), Y-T Chough (Gwangju, South Korea), Y-H Kim (Pohang, South Korea)  
*Experimental Demonstration of Quantum Stationary Light Pulses in an Atomic Ensemble* (invited talk)
- S7.1.3** 12:10 – 12:30 F Sośnicki, M Mikołajczyk, A Golestani, M Gałka, M Karpiński (Warsaw, Poland)  
*Electro-Optic Temporal Optical Systems for Spectral Shaping of Quantum Light* (invited talk)

**S7.2 (14:00 – 16:00)**

**Chair:** Yoon-Ho Kim (South Korea)

- S7.2.1** 14:00 – 14:30 M Genovese (Turin, Italy)  
*Tomography of Pseudodensity Operators and Experimental Simulation of OTC PDO* (invited talk)

- S7.2.2** 14:30 – 15:00 M Persechino (Orsay, France), L Trigo Vidarte (Palaiseau, France), M Ziebell, P Crozat (Orsay, France), A Villing (Palaiseau, France), D Marris-Morini, L Vivien (Orsay, France), E Diamanti (Paris, France), P Grangier (Palaiseau, France)  
*Recent Progress in Continuous Variable Quantum Cryptography* (invited talk)
- S7.2.3** 15:00 – 15:30 V Tamma (Portsmouth, UK)  
*Toward “Real World” Quantum Computational Supremacy and Quantum Enhanced Sensing with Linear Optics Multiphoton Interferometry* (invited talk)
- S7.2.4** 15:30 – 16:00 M Żukowski, B Woloncewicz (Gdańsk, Poland), J Ryu (Singapore, Singapore), M Wiesniak, M Marciniak (Gdańsk, Poland)  
*Entanglement Indicators for Quantum Optics Involving Stokes Parameters* (invited talk)

### S7.3 (16:30 – 18:30)

**Chair:** Philippe Grangier (France)

- S7.3.1** 16:30 – 16:55 R Stárek, M Mičuda, M Miková, I Straka, M Dušek, P Marek, M Ježek, R Filip, J Fiurášek (Olomouc, Czech Republic)  
*Experimental Demonstration of Photonic Quantum Fredkin Gate and Its Applications* (invited talk)
- S7.3.2** 16:55 – 17:15 Y Kim (Pohang, South Korea), Y-S Kim, S-Y Lee, S-W Han, S Moon (Seoul, South Korea), Y-H Kim (Pohang, South Korea), Y-W Cho (Seoul, South Korea)  
*Direct Quantum Process Tomography via Measuring Sequential Weak Values of Incompatible Observables* (invited talk)
- S7.3.3** 17:15 – 17:45 R A Ribeiro, A A Matoso (Belo Horizonte, Brazil), L E Oxman, A Z Khoury (Niteroi, Brazil), S Padua (Belo Horizonte, Brazil)  
*Robustness of the Fractional Topological Phase to Dephasing Noise: Theory and Experiment* (invited talk)
- S7.3.4** 17:45 – 18:05 G Caiazzo, A Allevi, M Bondani (Como, Italy), S Olivares (Milan, Italy)  
*Quantum-State Tomography with Homodyne-Like Detection* (invited talk)
- S7.3.5** 18:05 – 18:30 C-J Yeh, W-T Liao (Taoyuan, Taiwan)  
*Optimization of X-Ray Forward Echo* (invited talk)

**Tuesday, 17 July, 2018****S7.4 (11:15 – 12:30)****Chair:** Maria Chekhova (Germany)

- S7.4.1** S Varró (Budapest, Szeged, Hungary)  
11:15 – 11:45 *Planck Entropy Expressed by the Hausdorff Dimension of the Set of Average Excitation Degrees of a Two Level Atom in Thermal Equilibrium* (invited talk)
- S7.4.2** I V Dyakonov, I A Pogorelov, I V Kondratiev, I B Bobrov, A A Kalinkin, P V Dyakonov, S A Evlashin, S S Straupe, S P Kulik (Moscow, Russia)  
11:45 – 12:00 *Reconfigurable Laser-Written Integrated Photonic Circuits* (invited talk)
- S7.4.3** Y H Shih (Baltimore MD, USA)  
12:00 – 12:30 *The Physics of Turbulence-Free Interference and Imaging* (invited talk)

**S7.5 (14:00 – 16:00)****Chair:** Yanhua Shih (USA)

- S7.5.1** A Stefanov, M Unternährer, B Bessire (Bern, Switzerland), L Gasparini, M Perenzoni (Trento, Italy)  
14:00 – 14:25 *Super-Resolution Quantum Imaging at the Heisenberg Limit* (invited talk)
- S7.5.2** K Hakuta (Tokyo, Japan)  
14:25 – 14:50 *Cavity QED on an Optical Nanofiber*
- S7.5.3** V Parigi (Paris, France)  
14:50 – 15:15 *Quantum Optical Frequency Comb and Implementation of Quantum Complex Networks* (invited talk)
- S7.5.4** F Koenig (St. Andrews, UK), M Jacquet (Vienna, Austria)  
15:15 – 15:35 *Spontaneous Emission in Optical Analogue Gravity Systems* (invited talk)
- S7.5.5** A Tomita (Sapporo, Japan)  
15:35 – 16:00 *Characterization and Security Certification of a Practical Quantum Key Distribution System* (invited talk)

**Wednesday, 18 July, 2018****S7.6 (11:15 – 12:30)****Chair:** Dmitry Strekalov (Germany)

**S7.6.1** 11:15 – 11:45 A Saraiva (Rio de Janeiro, Brazil), F S de Aguiar Jr. (Belo Horizonte, Brazil), R Melo e Souza (Rio de Janeiro, Brazil), A P Pena, C H Monken (Belo Horizonte, Brazil), M F Santos, B Koiller (Rio de Janeiro, Brazil), A Jorio (Belo Horizonte, Brazil)  
*Photonic Counterparts of Cooper Pairs* (invited talk)

**S7.6.2** 11:45 – 12:10 P Mataloni (Rome, Italy)  
*Simulating Non-Markovian Dynamics of Open Quantum Systems by a Double Sagnac Multipass Interferometer* (invited talk)

**S7.6.3** 12:10 – 12:30 L Motka, M Paur, J Rehacek, Z Hradil (Olomouc, Czech Republic), L L Sanchez-Soto (Erlangen, Germany; Madrid, Spain)  
*Efficient Tomography with Unknown Detectors* (invited talk)

**S7.7 (14:00 – 16:00)****Chair:** Carlos Monken (Brazil)

**S7.7.1** 14:00 – 14:25 D Strekalov (Erlangen, Germany)  
*On Spectral and Dynamical Properties of Sub-Threshold OPOs* (invited talk)

**S7.7.2** 14:25 – 14:50 N V Corzo, J Raskop, A Chandra, A S Sheremet, B Gouraud, J Laurat (Paris, France)  
*Coupling a Single Collective Excitation of Atomic Arrays to a Nanoscale Waveguide* (invited talk)

**S7.7.3** 14:50 – 15:10 Y Miyamoto (Chofu, Japan), G R Salla (Amaravati, India)  
*Probing the Orbital Angular Momentum Spectrum of Incoherent Mixtures* (invited talk)

**S7.7.4** 15:10 – 15:30 G Jimenez, L Sendra, A Valles, J P Torres (Barcelona, Spain)  
*Correlations and coherence* (invited talk)

**S7.7.5** 15:30 – 16:00 A Beige, N Furtak-Wells (Leeds, UK), L A Clark (Newcastle upon Tyne, UK), R Purdy (Leeds, UK)  
*Scattering Light Through Semi-Transparent Mirrors* (invited talk)

**S7.8 (16:30 – 18:30)****Chair:** Juan Torres (Spain)

- S7.8.1** 16:30 – 16:50 M V Fedorov (Moscow, Russia), A A Sysoeva, S V Vintskevich, D A Grigoriev (Dolgoprudny, Russia; Moscow, Russia)  
*Temporal Combs in the Hong-Ou-Mandel Effect in Noncollinear and Frequency-Nondegenerate Spontaneous Parametric Down-Conversion* (invited talk)
- S7.8.2** 16:50 – 17:20 G Manzano, R Zambrini (Palma De Mallorca, Spain), F Plastina (Cosenza, Italy)  
*Thermodynamics of Classical and Quantum Correlations* (invited talk)
- S7.8.3** 17:20 – 17:45 Yu I Bogdanov, B I Bantysh, N A Bogdanova, V F Lukichev (Moscow, Russia)  
*The Provision of Quality and Effectiveness of Quantum Information Technologies by Means of Quantum Measurements* (invited talk)
- S7.8.4** 17:45 – 18:05 K G Katamadze, G V Avosopiants, B I Bantysh, Yu I Bogdanov, S P Kulik (Moscow, Russia)  
*Multiphoton Subtracted Thermal States as a Testing Area in Quantum Optics* (invited talk)
- S7.8.5** 18:05 – 18:30 A Cavanna, C Okoth, T Santiago-Cruz, M V Chekhova (Erlangen, Germany)  
*Generation of Two- and Three-Photon States in Thin Crystal Layers*

**Thursday, 19 July, 2018****S7.9 (10:30 – 12:30)****Chair:** Paolo Mataloni (Italy)

- S7.9.1** 10:30 – 10:50 I A Burenkov, S V Polyakov (Gaithersburg MD, USA)  
*Violation of Shannon Limit with Quantum-Enhanced Measurements* (invited talk)
- S7.9.2** 10:50 – 11:15 L C Kwek (Singapore, Singapore), S Sonar (Mumbai, India), M Hajdusek, M Mukherjee (Singapore, Singapore), R Fazio (Pisa, Italy; Singapore, Singapore), V Vedral (Oxford, UK; Singapore, Singapore), S Vinjanampathy (Singapore, Singapore)  
*Enhancing the Performance of a Self-Sustained Oscillator Through a Squeezing Hamiltonian* (invited talk)

- S7.9.3** 11:15 – 11:40 Y S Teo, D Ahn (Seoul, South Korea), F Bouchard (Ottawa, Canada), D Koutny (Olomouc, Czech Republic), H Jeong (Seoul, South Korea), J Rehacek, Z Hradil (Olomouc, Czech Republic), L L Sanchez-Soto (Erlangen, Germany; Madrid, Spain), E Karimi (Ottawa, Canada; Zanjan, Iran), R W Boyd (Rochester NY, USA; Ottawa, Canada)  
*Adaptive Compressed-Sensing Tomography with no A Priori Information* (invited talk)
- S7.9.4** 11:40 – 12:10 K S Spasibko, M Manceau (Erlangen, Germany), R Filip (Olomouc, Czech Republic), G Leuchs (Erlangen, Germany), M V Chekhova (Erlangen, Germany; Moscow, Russia)  
*Pumping Nonlinear Effects with Squeezed Vacuum: Enhanced Efficiency and Extreme Events* (invited talk)
- S7.9.5** 12:10 – 12:30 I A Burenkov, S V Polyakov (Gaithersburg MD, USA)  
*First Nonclassical Light Detection in a Practical Flow Cytometer* (invited talk)

### S7.10 (14:00 – 16:00)

**Chair:** Julien Laurat (France)

- S7.10.1** 14:00 – 14:20 R V Zakharov, O V Tikhonova (Moscow, Russia)  
*Schmidt Mode Description and Photon Correlations in Strongly Non-Degenerate Parametric Down-Conversion* (invited talk)
- S7.10.2** 14:20 – 14:40 A A Rakhubovsky, N Vostrosablin, R Filip (Olomouc, Czech Republic), U B Hoff, U L Andersen (Kongens Lyngby, Denmark)  
*Pulsed Continuous-Variable Optoelectromechanical Transducer Based on Geometric Phase Effect* (invited talk)
- S7.10.3** 14:40 – 15:10 R Keil (Innsbruck, Austria)  
*Symmetries in Many-Photon Interference* (invited talk)
- S7.10.4** 15:10 – 15:40 L Davidovich (Rio de Janeiro, Brazil)  
*Quantum Metrology in Phase Space* (invited talk)
- S7.10.5** 15:40 – 16:00 K S Kravtsov, A K Zhutov, I V Radchenko, S P Kulik (Moscow, Russia)  
*Spatially Multiplexed Free-Space Quantum Channels in Turbulent Atmosphere* (invited talk)

**S7.11 (16:30 – 19:30)****Chair:** Marek Zukowski (Poland)

- S7.11.1** 16:30 – 16:55 M Stobinska, A Buraczewski (Warsaw, Poland), M Moore, W R Clements (Oxford, UK), J J Renema (Enschede, The Netherlands), T Gerrits, A Lita (Boulder CO, USA), W S Kolthammer, A Eckstein, I A Walmsley (Oxford, UK)  
*Quantum Interference Enables Constant-Time Information Processing* (invited talk)
- S7.11.2** 16:55 – 17:25 T Gehring, A Kordts, D Solar Nikolic, N Jain (Kongens Lyngby, Denmark), C Lupo, S Pirandola (York, UK), T B Pedersen (Aarhus, Denmark), U L Andersen (Kongens Lyngby, Denmark)  
*9 Gbit/s Real-Time Quantum Random Number Generator Based on Vacuum Fluctuations*
- S7.11.3** 17:25 – 17:55 P Marek, R Filip (Olomouc, Czech Republic), A Furusawa (Tokyo, Japan)  
*Nonlinear Squeezing for Quantum Information Processing* (invited talk)
- S7.11.4** 17:55 – 18:20 R V Zakharov, O V Tikhonova (Moscow, Russia)  
*Selection of Spatial Modes in Bright Squeezed States of Light*
- S7.11.5** 18:20 – 18:45 I Ruo-Berchera, S Pradyumna, E Losero, P Traina, I P Degiovanni, M Zucco, M Genovese (Turin, Italy), T Gehring, C S Jacobsen, U L Andersen (Lyngby, Denmark)  
*Quantum Enhanced Correlated Interferometry: the First Feasibility Test* (invited talk)
- S7.11.6** 18:45 – 19:10 A Ferreri, P Sharapova, K Hong Luo, H Herrmann, C Silberhorn (Paderborn, Germany)  
*Photon Sensing with Using Bright Squeezed Light in an Integrated SU(1,1) Interferometer*
- S7.11.7** 19:10 – 19:30 A Allevi, G Chesi, L Malinverno, R Santoro, M Caccia, M Bondani (Como, Italy)  
*Testing Nonclassicality of Mesoscopic Twin-Beam States with Silicon Photomultipliers* (invited talk)

**Friday, 20 July, 2018****S7.12 (09:15 – 10:45)****Chair:** Yoko Miyamoto (Japan)

- S7.12.1** 09:15 – 09:40 T Ono, G F Sinclair, D Bonneau, J L O'Brien, M G Thompson, J F C Matthews, J G Rarity (Bristol, UK)  
*Non-Linear Interference on Silicon Waveguide* (invited talk)

**S7.12.2**      Q Wang (Nanjing, China)  
 09:40 – 10:05    *Practical Measurement-Device-Independent Quantum Key Distribution with Heralded Single-Photon Sources* (invited talk)

**S7.13 (11:15 – 12:30)**

**Chair:** Luiz Davidovich (Brazil)

**S7.13.1**      E Meyer-Scott, N Prasanna, N Montaut, J Tiedau, G Harder, L Sansoni, H Herrmann, J M Donohue, C Eigner, R Ricken, V Quiring, T J Bartley, S Barkhofen, C Silberhorn (Paderborn, Germany)  
 11:15 – 11:40    *Waveguide Sources of Entangled and Unentangled Photon Pairs* (invited talk)

**S7.13.2**      A D Tranter, H J Slatyer, M R Hush, A C Leung, J L Everett, K V Paul, P Vernaz-Gris, P K Lam, B C Buchler, G T Campbell (Canberra, Australia)  
 11:40 – 12:05    *Multiparameter Optimisation of a Magneto-Optical Trap Using Deep Learning Artificial Neural Networks* (invited talk)

**S7.13.3**      M Bina, M G Genoni (Milan, Italy), F Grasselli (Düsseldorf, Germany), M G A Paris (Milan, Italy)  
 12:05 – 12:30    *Quantum Probing of Structured Environments* (invited talk)

**S7.14 (14:00 – 16:00)**

**Chair:** Leong Chuan Kwek (Singapore)

**S7.14.1**      V M Porozova (St.-Petersburg, Russia), L V Gerasimov (Moscow, Russia), D V Kupriyanov (St.-Petersburg, Russia)  
 14:00 – 14:25    *On a Theory of the Raman Sideband Cooling of a Single Atom in a Dipole Trap*

**S7.14.2**      K A Kuznetsov, G Kh Kitaeva, V V Kornienko, T I Novikova (Moscow, Russia)  
 14:25 – 14:50    *Generation and Detection of Optical-Terahertz Photon Pairs Via Spontaneous Parametric Down Conversion* (invited talk)

**S7.14.3**      G Chesi (Como, Italy), S Olivares, M G A Paris (Milan, Italy)  
 14:50 – 15:15    *Squeezing As a Resource for Phase-Shift-Keyed Binary Communication in Noisy Channels* (invited talk)

**S7.14.4**      S V Vintskevich, S N Filippov (Dolgoprudny, Russia; Moscow, Russia)  
 15:15 – 15:35    *Entanglement Properties of Biphotons in SPDC Process Affected by Quantized Mixed Pump*

**S7.14.5**      D Stefanatos, E Paspalakis (Patras, Greece)  
 15:35 – 15:55    *Boosting Entanglement Between Exciton-Polaritons with on-off Switching of Josephson Coupling*



## Seminar 8: Fiber Optics

### Co-Chairs

<b>Sergey A. Babin</b>	Institute of Automation and Electrometry, Novosibirsk, Russia
<b>Evgueni M. Dianov</b>	Fiber Optics Research Center, Moscow, Russia
<b>Sergei K. Turitsyn</b>	Aston University, Birmingham, UK

**Wednesday, 18 July, 2018**

### **S8.1 (11:15 – 12:30)**

<b>S8.1.1</b> 11:15 – 11:45	<u>Y Glick</u> , Y Shamir, Y Sintov, M Aviel, S Pearl (Yavne, Israel) <i>1.2 kW Clad-Pumped Raman All-Fiber Laser with Brightness Enhancement</i> (invited talk)
<b>S8.1.2</b> 11:45 – 12:15	<u>P Peterka</u> (Prague, Czech Republic) <i>Dynamic Fiber Gratings in Fiber Lasers</i> (invited talk)
<b>S8.1.3</b> 12:15 – 12:30	<u>A Kir'yanov</u> (León, Mexico; Moscow, Russia), Y Barmenkov (León, Mexico) <i>Highly-Effective 2.05-<math>\mu</math>m Holmium Fiber Laser Pumped by 1.13-<math>\mu</math>m Ytterbium Fiber Laser</i>

### **S8.2 (14:00 – 16:00)**

<b>S8.2.1</b> 14:00 – 14:25	<u>M Chernysheva</u> , S Sugavanam (Birmingham, UK) <i>Quasi-Lossless Ultra Long Mode-Locked Erbium-Doped Fibre Laser</i> (invited talk)
<b>S8.2.2</b> 14:25 – 14:50	<u>L M Zhao</u> , L Li, J Q Zhao, T T Zhao (Xuzhou, China) <i>Continuously Vibrating Scalar Solitons in a Tm Fiber Laser</i> (invited talk)
<b>S8.2.3</b> 14:50 – 15:15	<u>O Pottiez</u> , Y Bracamontes-Rodriguez, H E Ibarra-Villalon (León, Mexico), J P Lauterio-Cruz, J C Hernandez-Garcia (Salamanca, Mexico), M Bello-Jimenez (San Luis Potosí, Mexico), E A Kuzin (Puebla, Mexico) <i>Numerical Study of Complex Noiselike Pulse Dynamics in a Partially Mode-Locked Fiber Laser</i>

- S8.2.4** 15:15 – 15:35 M Duran-Sanchez, B Posada Ramírez (Puebla, Mexico), R I Álvarez-Tamayo (Monterrey, Mexico), H Santiago -Hernández (Puebla, Mexico), M Bello Jiménez (San Luis Potosí, Mexico), E A. Kuzin, B Ibarra-Escamilla (Puebla, Mexico)  
*Dissipative Soliton Resonance in an Anomalous Dispersion Passively Mode-Locked Thulium-Doped Fiber Laser*
- S8.2.5** 15:35 – 15:50 B Posada Ramirez, M Durán Sánchez (Puebla, Mexico), R I Álvarez Tamayo (Monterrey, Mexico), B Ibarra Escamilla, E A Kuzin (Puebla, Mexico), J L Cruz, M V Andres (Valencia, Spain)  
*Tunable Dual-Wavelength Laser with Double-Cladding Thulium Doped Fiber Using Two FBG*

### S8.3 (16:30 – 18:30)

- S8.3.1** 16:30 – 17:00 S Boscolo (Birmingham, UK), F Audo, F Chaussard, C Finot (Dijon, France)  
*Characterisation and Mitigation of Self-Phase Modulation in Optical Fibres* (invited talk)
- S8.3.2** 17:00 – 17:15 D Churkin, S V Smirnov, M Makarenko (Novosibirsk, Russia), A A Sukhorukov (Canberra, Australia), I Vatnik (Novosibirsk, Russia)  
*PT-Symmetric Coupled Raman Fiber Lasers*
- S8.3.3** 17:15 – 17:30 D S Kharenko, V A Gonta (Novosibirsk, Russia), K Krupa (Brescia, Italy), E V Podivilov, S A Babin (Novosibirsk, Russia), S Wabnitz (Novosibirsk, Russia; Brescia, Italy)  
*Spatial Beam Self-Cleaning Conditions in Multimode Graded-Index Fibers with Different Core Diameter*
- S8.3.4** 17:30 – 17:50 E A Evmenova, A G Kuznetsov, S I Kablukov, S A Babin (Novosibirsk, Russia)  
*Random Lasing in a LD-Pumped Multimode Fiber Raman Laser*
- S8.3.5** 17:50 – 18:10 I S Terekhov, A V Reznichenko, A I Chernykh, S V Smirnov (Novosibirsk, Russia)  
*Capacity of the Nondispersive Nonlinear Optical Channel and Its' Dependence on the Form of Initial Signal*
- S8.3.6** 18:10 – 18:30 A V Reznichenko, I S Terekhov (Novosibirsk, Russia)  
*Investigation of Nonlinear Communication Channel with Small Dispersion via Stochastic Correlator Approach*

## Seminar 9: Extreme Light Technologies, Science, and Applications

### Co-Chairs

<b>Antonino Di Piazza</b>	Max Planck Institute for Nuclear Physics, Heidelberg, Germany
<b>Alexander Fedotov</b>	National Research Nuclear University MEPhI, Moscow, Russia
<b>Christoph Keitel</b>	Max Planck Institute for Nuclear Physics, Heidelberg, Germany

**Monday, 16 July, 2018**

### **S9.1 (11:15 – 12:30)**

**Chair:** Bjoern Manuel Hegelich (South Korea)

- S9.1.1**      S P D Mangles (London, UK)  
11:15 – 11:40    *Using High Intensity Lasers to Explore Quantum Electrodynamics*  
(invited talk)
- S9.1.2**      G Sarri (Belfast, UK), K Poder (Hamburg, Germany), M Tamburini,  
11:40 – 12:05    A Di Piazza (Heidelberg, Germany), J Cole (London, UK), C H  
Keitel (69117 Heidelberg, Germany), K Krushelnick (Ann Arbor MI,  
USA), S P D Mangles (London, UK), P McKenna (Glasgow, UK),  
C D Murphy (York, UK), Z Najmudin (London, UK), C Ridgers  
(York, UK), A G R Thomas (Ann Arbor MI, USA), M Zepf (Jena,  
Germany)  
*Radiation Reaction and High-Field Quantum Electrodynamics with  
Intense Lasers* (invited talk)
- S9.1.3**      T N Wistisen (Heidelberg, Germany)  
12:05 – 12:30    *Experimental Evidence of Quantum Radiation Reaction in Aligned  
Crystals* (invited talk)

### **S9.2 (14:00 – 16:00)**

**Chair:** Gianluca Sarri (UK)

- S9.2.1**      V Yakimenko (Menlo Park CA, USA)  
14:00 – 14:30    *Experimental Program at FACET-II Enabled by Its Unique Electron  
Beams* (invited talk)

- S9.2.2** 14:30 – 15:00 D Umstadter, W Yan, C Fruhling, G Golovin, D Haden (Lincoln NE, USA), J Luo (Shanghai, China), P Zhang, B Zhao, J Zhang, C Liu (Lincoln NE, USA), M Chen (Shanghai, China), S Chen, S Banerjee (Lincoln NE, USA)  
*Extremely High-Order Multiphoton Thomson Scattering* (invited talk)
- S9.2.3** 15:00 – 15:30 B M Hegelich (Gwangju, South Korea)  
*Quantum Effects in Extreme Fields – Theory and Experiments at the Center for Relativistic Laser Science’s 4PW Laser* (invited talk)
- S9.2.4** 15:30 – 15:55 M Grech (Palaiseau, France)  
*Overview of Recent Developments Around the Apollon 10-PW Laser* (invited talk)

### S9.3 (16:30 – 18:30)

**Chair:** Stepan Bulanov (USA)

- S9.3.1** 16:30 – 16:55 T P Yu (Changsha, China), X L Zhu (Shanghai, China), H Z Li, L X Hu, K Liu (Changsha, China), P McKenna, Z M Sheng (Scotland, UK)  
*Petawatt Laser-Driven Bright  $\gamma$ -Ray Emission and Dense Positron Production in Near-Critical-Density Plasmas* (invited talk)
- S9.3.2** 16:55 – 17:15 M Tamburini, A Benedetti, C H Keitel (Heidelberg, Germany)  
*Giant Collimated Gamma-Ray Flashes* (invited talk)
- S9.3.3** 17:15 – 17:45 L Gremillet (Arpajon, France), B Martinez, M Lobet (Bordeaux, France; Arpajon, France), E d’Humières (Bordeaux, France)  
*High-Energy Radiation Sources from Structured and Thin Targets Driven by Ultraintense Lasers* (invited talk)
- S9.3.4** 17:45 – 18:05 F Mackenroth (Dresden, Germany), N Kumar, N Neitz, C H Keitel (Heidelberg, Germany)  
*Nonlinear Compton Scattering of an Ultra-Intense Laser Pulse in a Plasma* (invited talk)
- S9.3.5** 18:05 – 18:25 J Vyskocil, O Klimo, S A Weber (Prague, Czech Republic)  
*Simulations of Bremsstrahlung in Ultra-Intense Laser Interactions with Thin Foils* (invited talk)

**Tuesday, 17 July, 2018****S9.4 (11:15 – 12:30)****Chair:** Christopher Ridgers (UK)

- S9.4.1** R Prasad (Düsseldorf, Germany)  
11:15 – 11:40 *High Intensity Laser Matter Interaction Employing Dual Beam ARCTURUS Laser System* (invited talk)
- S9.4.2** K M Spohr, D Stutman, F Negoita (Bucharest, Romania)  
11:40 – 12:05 *Planned Day-1 Experiments with Solid Targets at ELI-NP*
- S9.4.3** X Ribeyre, E d'Humières, L Esnault, S Jequier, J L Dubois, S Hulin, V T Tikhonchuk (Talence, France), L Lancia, J R Marques (Palaiseau, France), O Jansen, A Arifiev, T Toncian (San Diego, USA), Y Sentoku (Osaka, Japan)  
12:05 – 12:30 *Breit-Wheeler Pairs Creation in Gamma Photon Collisions Using Ultra-High Intensity Laser Facilities* (invited talk)

**S9.5 (14:00 – 16:00)****Chair:** Kensuke Homma (Japan)

- S9.5.1** H Bernhard, B Grabiger, R Löttsch, B Marx-Glowna, A Schmitt, K-S Schulze, I Uschmann, G G Paulus (07743 Jena, Germany)  
14:00 – 14:30 *Precision X-Ray Polarimetry for the Detection of Vacuum Birefringence* (invited talk)
- S9.5.2** H-P Schlenvoigt (Dresden, Germany)  
14:30 – 14:45 *Towards Measuring Vacuum Birefringence*
- S9.5.3** B King (Plymouth, UK), A M Fedotov (Moscow, Russia), H Hu (Mianyang, China), B Shen (Shanghai, China)  
14:45 – 15:10 *Leptons and Photons in Quasi-Constant Fields* (invited talk)
- S9.5.4** A Blinne, H Gies, F Karbstein, C Kohlfürst, M Zepf (Jena, Germany)  
15:10 – 15:35 *Photon-Photon Scattering at the High-Intensity Frontier: Paraxial Beams* (invited talk)
- S9.5.5** A Blinne, H Gies, F Karbstein, C Kohlfürst, M Zepf (Jena, Germany)  
15:35 – 16:00 *The Vacuum Emission Picture Beyond Paraxial Approximation* (invited talk)

**Wednesday, 18 July, 2018****S9.6 (11:15 – 12:30)****Chair:** Anton Ilderton (UK)

- S9.6.1**      B Kampfer, U Hernandez Acosta (Dresden, Germany)  
11:15 – 11:35      *Strong-Field Trident Process* (invited talk)
- S9.6.2**      V Dinu (Bucharest, Romania), G Torgrimsson (Jena, Germany)  
11:35 – 12:00      *Trident Pair Production in Plane Waves* (invited talk)
- S9.6.3**      A Hartin (Hamburg, Germany; London, UK)  
12:00 – 12:30      *Families of Volkov-Like Solutions and Their Applications* (invited talk)

**S9.7 (14:00 – 16:00)****Chair:** Felix Mackenroth (Germany)

- S9.7.1**      S Ter-Avetisyan (Szeged, Hungary)  
14:00 – 14:20      *Ion Acceleration with PW-Lasers, Progress and Perspectives* (invited talk)
- S9.7.2**      A S Samsonov, I Yu Kostyukov, E N Nerush (Nizhny Novgorod, Russia)  
14:20 – 14:40      *Ion Acceleration and QED Effects at Ultrahigh Intensity Laser-Foil Interaction* (invited talk)
- S9.7.3**      S Bolaños, J Fuchs (Palaiseau, France)  
14:40 – 15:05      *Ion Acceleration by Ultra-Intense Lasers Beyond  $10^{20}$  W/cm<sup>2</sup>* (invited talk)
- S9.7.4**      E G Gelfer (Moscow, Russia; Prague, Czech Republic), A M Fedotov (Moscow, Russia), S Weber (Prague, Czech Republic)  
15:05 – 15:20      *Radiation Friction Enhancement of Longitudinal Plasma Waves and Ion Acceleration* (invited talk)
- S9.7.5**      I Barth (Jerusalem, Israel), N J Fisch (Princeton NJ, USA)  
15:20 – 15:45      *Spectral Manipulation of Raman Amplifiers* (invited talk)
- S9.7.6**      R Capdessus, P McKenna (Glasgow, UK)  
15:45 – 16:05      *Collisionless Radiative Shock in Laser-Induced QED Plasmas* (invited talk)

**S9.8 (16:30 – 18:30)****Chair:** Antonino Di Piazza (Germany)

- S9.8.1** 16:30 – 16:55 A Gonoskov, M Marklund (Gothenburg, Sweden)  
*Radiative Effects on Particle Motion: the Case of Strong Fields* (invited talk)
- S9.8.2** 16:55 – 17:15 S S Bulanov, E Esarey, Q Ji, S Steinke, C B Schroeder, T Schenkel, W P Leemans (Berkeley CA, USA)  
*Radiation Reaction and nQED Studies at the BELLA Center* (invited talk)
- S9.8.3** 17:15 – 17:35 C P Ridgers (York, UK)  
*Towards Experimental Observation of Strong-Field QED Processes with PW-Class High Intensity Lasers* (invited talk)
- S9.8.4** 17:35 – 18:00 T V Liseykina (Rostock, Germany; Novosibirsk, Russia), S V Popruzhenko (Moscow, Russia), A Macchi (Pisa, Italy)  
*Effects of Radiation Reaction on the Self-Consistent Dynamics of Laser Plasma in the Radiation-Dominated Regime* (invited talk)
- S9.8.5** 18:00 – 18:20 F Niel, C Riconda, F Amiranoff (Paris, France), M Grech (Palaiseau, France)  
*Stochasticity Effects of Radiation Reaction on the Radiated Spectrum* (invited talk)
- S9.8.6** 18:20 – 18:30 L Ansell (Plymouth, UK)  
*Relativistic Charge Motion in Laser Fields* (invited talk)

**Thursday, 19 July, 2018****S9.9 (10:30 – 12:30)****Chair:** Ben King (UK)

- S9.9.1** 10:30 – 11:00 R Schuetzhold (Dresden, Germany)  
*Dynamically Assisted Sauter-Schwinger Effect* (invited talk)
- S9.9.2** 11:00 – 11:25 D Blaschke (Dubna, Russia; Moscow, Russia; Wrocław, Poland), E Nazarova (Wrocław, Poland; Moscow, Russia), L Juchnowski (Wrocław, Poland), B Kaempfer, A Otto (Dresden, Germany), A Panferov, S Smolyansky (Saratov, Russia)  
*Kinetic Equation Approach to Particle Production – From Laser to Heavy-Ion Colliders* (invited talk)
- S9.9.3** 11:25 – 11:50 H R Reiss (Berlin, Germany; Washington DC, USA)  
*Pairs from the Vacuum* (invited talk)

**S9.9.4** 11:50 – 12:10 K Krajewska, W Gac, M Twardy, J Z Kamiński (Warsaw, Poland)  
*Diffraction at a Time Grating in the Dynamical Sauter-Schwinger Process* (invited talk)

**S9.9.5** 12:10 – 12:30 I A Aleksandrov (St.-Petersburg, Russia), G Plunien (Dresden, Germany), V M Shabaev (St.-Petersburg, Russia)  
*Dynamically Assisted Schwinger Mechanism Beyond the Spatially-Uniform-Field Approximation*

### **S9.10 (14:00 – 16:00)**

**Chair:** Alexander Fedotov (Russia)

**S9.10.1** 14:00 – 14:20 N Ahmadiniaz (Gwangju, South Korea), F Bastianelli (Bologna, Italy), O Corradini (Modena, Italy), J P Edwards, C Schubert (Morelia, Mexico)  
*One-Particle Reducible Contribution to the Electron Propagator in a Constant Background Field*

**S9.10.2** 14:20 – 14:45 J P Edwards, C Schubert (Morelia, Mexico), N Ahmadiniaz (Gwangju, South Korea), O Corradini (Modena, Italy), F Bastianelli (Bologna, Italy), A Huet (Queretaro, Mexico), I Huet (Chiapas, Mexico)  
*Reducible Tadpole Contributions in Constant Field QED* (invited talk)

**S9.10.3** 14:45 – 15:05 S Meuren (Princeton NJ, USA; 69117 Heidelberg, Germany)  
*Probing Nonperturbative Strong-Field QED Effects with Collider Experiments* (invited talk)

**S9.10.4** 15:05 – 15:20 C Baumann (Düsseldorf, Germany), E Nerush (Nizhny Novgorod, Russia), A Pukhov (Düsseldorf, Germany), I Yu Kostyukov (Nizhny Novgorod, Russia)  
*Entering the Fully Non-Perturbative QED Regime  $\alpha\chi^{2/3} \sim 1$  with QED-PIC Simulations* (invited talk)

**S9.10.5** 15:20 – 15:40 F Del Gaudio, T Grismayer, R Fonseca (Lisbon, Portugal), W B Mori (Los Angeles CA, USA), L O Silva (Lisbon, Portugal)  
*Disruption, Beamstrahlung and Pair Production in Beam-Beam Collisions* (invited talk)

**S9.10.6** 15:40 – 16:00 A A Mironov, A M Fedotov (Moscow, Russia)  
*On Strong-Field Behavior of Radiation Corrections in QED* (invited talk)



**S9.11 (16:30 – 19:30)****Chair:** Mickaël Grech (France)

- S9.11.1**      A Ilderton (Plymouth, UK)  
16:30 – 16:55    *Particle Dynamics in Electromagnetic Vortices and Gravitational Waves* (invited talk)
- S9.11.2**      A M Fedotov (Moscow, Russia), V V Dmitriev, A D Panferov, S A Smolyansky (Saratov, Russia)  
16:55 – 17:15    *Spin Effects in Schwinger Pair Production: Quantum Kinetics vs Imaginary Time* (invited talk)
- S9.11.3**      A Di Piazza (Heidelberg, Germany)  
17:15 – 17:45    *On the Validity of the Local Constant Field Approximation in Nonlinear Compton Scattering* (invited talk)
- S9.11.4**      E Raicher (Heidelberg, Germany), S Eliezer (Yavne, Israel; Madrid, Spain), C H Keitel, K Z Hatsagortsyan (Heidelberg, Germany)  
17:45 – 18:05    *Testing the Semi-Classical and the Constant-Crossed-Field Limits of Radiation* (invited talk)
- S9.11.5**      C Bild, H Ruhl (München, Germany)  
18:05 – 18:25    *A Novel Radiation Reaction Force and Quantum Corrections* (invited talk)
- S9.11.6**      A Noble (Glasgow, UK)  
18:25 – 18:45    *Entropic Considerations of Radiation Reaction* (invited talk)
- S9.11.7**      K Liu, T P Yu (Changsha, China)  
18:45 – 18:55    *Angular Momentum of Radiation Vortices from Nonlinear Thomson Scattering with Arbitrary Incident Angle*
- S9.11.8**      J Magnusson (Gothenburg, Sweden), A Gonoskov (Gothenburg, Sweden; Nizhny Novgorod, Russia), M Marklund (Gothenburg, Sweden), T Zh Esirkepov, J K Koga, K Kondo, M Kando (Kyoto, Japan), S V Bulanov (Kyoto, Japan; Moscow, Russia; Prague, Czech Republic), G Korn (Prague, Czech Republic), S S Bulanov (Berkeley CA, USA)  
18:55 – 19:20    *Interaction of Electron Beams with Optimally Focused Laser Radiation in the QED Regime* (invited talk)

**Friday, 20 July, 2018****S9.12 (09:15 – 10:45)****Chair:** Mattias Marklund (Sweden)

- S9.12.1** 09:15 – 09:40 S V Popruzhenko (Dresden, Germany), M Ciappina, S Weber, S V Bulanov, G Korn (Prague, Czech Republic)  
*Measurement of Ultrahigh Laser Intensities with Multiple Ionization of Heavy Atoms* (invited talk)
- S9.12.2** 09:40 – 10:00 C N Harvey (Gothenburg, Sweden)  
*Characterisation of Intense Laser Pulses in the Radiation Reaction Dominated Regime* (invited talk)
- S9.12.3** 10:00 – 10:20 T G Blackburn (Gothenburg, Sweden), D Seipt (Lancaster, UK; Warrington, UK), S S Bulanov (Berkeley CA, USA), M Marklund (Gothenburg, Sweden)  
*Benchmarking Semiclassical Approaches to Strong-Field QED* (invited talk)
- S9.12.4** 10:20 – 10:40 J-X Li (Heidelberg, Germany; Xi'an, China), Y-Y Chen, K Z Hatsagortsyan, C H Keitel (Heidelberg, Germany)  
*Single-Shot Carrier-Envelope Phase Determination of Long Superintense Laser Pulses* (invited talk)

**S9.13 (11:15 – 12:30)****Chair:** David Burton (UK)

- S9.13.1** 11:15 – 11:40 Y Wu, J Gunst, C H Keitel, A Pálffy (Heidelberg, Germany)  
*Nuclear Excitation by Electron Capture in Laser-Generated Plasmas*
- S9.13.2** 11:40 – 12:05 A J Macleod, A Noble (Glasgow, UK)  
*Cherenkov Radiation from the Quantum Vacuum* (invited talk)
- S9.13.3** 12:05 – 12:30 B Willenberg, J Maurer, B W Mayer, U Keller (Zürich, Switzerland)  
*Linear Momentum Transfer in Multiphoton Strong-Field Ionization with Subcycle Time Resolution* (invited talk)

**S9.14 (14:00 – 16:00)****Chair:** Adam Noble (UK)

- S9.14.1** 14:00 – 14:25 K Homma (Higashi-Hiroshima, Japan)  
*Probing Dark Components in the Universe in a Wide Mass Range from  $10^{-7}$  eV to  $10^4$  eV with Multi-Wavelength Lasers* (invited talk)
- S9.14.2** 14:25 – 14:45 D A Burton (Lancaster, UK), A Noble (Glasgow, UK)  
*A New Laser-Plasma-Based Approach to Light-Shining-Through-Wall Searches for Axion-Like Particles* (invited talk)

***S9.14.3***      B M Dillon (Plymouth, UK)  
14:45 – 15:05    *ALP Production Through Non-Linear Compton Scattering in Intense Fields*

## Closing Remarks

**Friday, 20 July, 2018**

***CR.1* (16:00 – 16:15)**

***CR.1.1***      S P Kulik (Moscow, Russia)  
16:00 – 16:15    *Closing Remarks*

## Poster Session

### Seminar 1: Modern Trends in Laser Physics

- P.S1.1 M Nemeč, R Svejkar, J Sulc, H Jelinkova (Prague, Czech Republic)  
*Cryogenic Cooled Er:YAlO<sub>3</sub> Laser*
- P.S1.2 M Fibrich, J Sulc, R Kral, V Jary, M Nemeč, H Jelinkova, A Bystricky, P Zemenova, M Nikl (Prague, Czech Republic)  
*Luminescence Study of RE-Doped Low-Energy Phonon RbPb<sub>2</sub>Cl<sub>5</sub> Crystals for Mid-IR Lasers Emitting Above 4.5  $\mu$ m Wavelength*
- P.S1.3 S Varró (Budapest, Szeged, Hungary), M Polner, A Vörös-Kiss (Szeged, Hungary)  
*Scattering of Ultrashort Electromagnetic Pulses on a System of Two Parallel Current Sheets*
- P.S1.4 N A Lozing, M G Gladush (Moscow, Russia; Troitsk, Moscow, Russia), I Yu Eremchev (Troitsk, Moscow, Russia)  
*Slowly Switching Fluorescence Intensity from an Ensemble of Quantum Emitters in a Dielectric Host*

### Seminar 2: Strong Field & Attosecond Physics

- P.S2.1 V I Usachenko, P E Pyak (Tashkent, Uzbekistan)  
*Intramolecular Interference in Strong-Field Ionization of Homonuclear Diatomic Molecules by Two-Color Laser Field*
- P.S2.2 A I Dnestryan, O I Tolstikhin (Dolgoprudny, Russia), L B Madsen, F Jensen (Aarhus, Denmark)  
*Structure Factors for Tunneling Ionization Rates of Molecules: General Hartree-Fock-Based Integral Representation*
- P.S2.3 S Varró, I F Barna (Budapest, Szeged, Hungary), P Földi (Szeged, Hungary)  
*Laser-Induced Distortion of Band Structure in Solids*
- P.S2.4 V I Usachenko, P E Pyak (Tashkent, Uzbekistan)  
*Enhanced Strong-Field Ionization of Homonuclear Diatomic Molecules in a Bichromatic Laser Field*
- P.S2.5 E J Mascarenhas, I Barth (Halle, Germany)  
*The Role of Orbital and Spin Angular Moment of Light on the Ionization of Current-Carrying Orbitals*

- P.S2.6 A Chen (London, UK), M F Kling (München, Germany), A Vila, A Emmanouilidou, G P Katsoulis (London, UK)  
*Controlling Electron-Electron Correlation in Frustrated Double Ionization of Molecules with Orthogonally-Polarized Two-Color Laser Fields*
- P.S2.7 V A Birulia (Dolgoprudny, Russia; Moscow, Russia), V V Strelkov (Moscow, Russia)  
*Spectral Caustic in Two-Color High Harmonic Generation. Role of Coulomb Effects*

### Seminar 3: Laser Biomedical Applications

- P.S3.1 S V Kireev (Moscow, Russia)  
*Investigation of the Effect of the Gas Mixture Composition on the Accuracy of I2 Detection in Real Time by the Laser-Excited Fluorescence Method*
- P.S3.2 S L Shnyrev (Moscow, Russia)  
*Using of Frequency-Doubled Neodymium Laser for Remote Control of Molecular Iodine in Atmosphere*
- P.S3.3 S V Kireev, S L Shnyrev (Moscow, Russia)  
*Using of tunable diode laser (632-637 nm) for on-line detecting of 129I2, 129I127I, 127I2 and NO2 in gases*
- P.S3.4 S V Kireev, S L Shnyrev, A A Kondrashov (Moscow, Russia)  
*Using of Lock-In Detection Technique for Increasing Sensitivity of Detecting <sup>13</sup>CO<sub>2</sub> in the Human Exhaled Breath*
- P.S3.5 D V Panov, D V Ushakov, V N Petrovskiy, A O Andreev, S V Kireev (Moscow, Russia)  
*High Removal Rate Laser Processing of Zirconium Oxide*

### Seminar 4: Physics of Lasers

- P.S4.1 B Alonso (Porto, Portugal), I J Sola (Salamanca, Spain), H Crespo (Porto, Portugal)  
*Measuring Arbitrary Long Pulses Using any Pulse Compressor with Self-Calibrating D-Scan*

### Seminar 5: Nonlinear Optics & Spectroscopy

- P.S5.1 A Ionin, I Kinyaevskiy, Yu Klimachev, A Kotkov, D Kruchkov, V Mozhaeva, D Mokrousova (Moscow, Russia), Yu Andreev (Tomsk, Russia), E Sunchugasheva (Moscow, Russia)  
*Spectral Features of Broadband Cascaded Frequency Conversion of Multiline Co Laser in a Single ZnGeP<sub>2</sub> Crystal*
- P.S5.2 A V Shutov, I V Smetanin, D V Mokrousova, N N Ustinovskii, V D Zvorykin, A A Ionin (Moscow, Russia)  
*Direct Measurement of the Characteristic Three-Body Electron Attachment Time in Moist and Dry Air in DC Electric Field*

### Seminar 6: Physics of Cold Trapped Atoms

- P.S6.1 M Łącki (Kraków, Poland), J Budich (Dresden, Germany), H Pichler (Cambridge MA, USA; Innsbruck, Austria), A Elben (Innsbruck, Austria), A Sterdyniak (Garching, Germany), A Lyras, V Lembessis (Riyadh, Saudi Arabia), P Zoller (Innsbruck, Austria)  
*Non-Standard Optical Potentials Geometries for Ultracold Atoms: Fractional Quantum Hall Physics*
- P.S6.2 K Biedroń, M Łącki, J Zakrzewski (Kraków, Poland)  
*Extended Bose-Hubbard Model with Dipolar and Contact Interactions*

### Seminar 7: Quantum Information Science

- P.S7.1 E V Kovlakov, S S Straupe, S P Kulik (Moscow, Russia)  
*Quantum State Engineering with Twisted Photons via Adaptive Control of the Pump Beam*
- P.S7.2 V I Kovalev (Moscow, Russia; Edinburgh, UK)  
*Photoelectric Effect at Sub-Photon Energy in Incident Pulsed Laser Radiation*
- P.S7.3 Yu I Bogdanov, D V Fastovets, N A Bogdanova, V F Lukichev (Moscow, Russia)  
*Discrete Mathematics Methods in Terms of Quantum Computation* (invited talk)
- P.S7.4 Yu I Bogdanov, N A Bogdanova, D V Fastovets, V F Lukichev (Moscow, Russia)  
*Dynamical Systems Modeling by Quantum Theory Methods*
- P.S7.5 Yu I Bogdanov, B I Bantysh, D V Fastovets (Moscow, Russia)  
*Quantum Tomography on IBM Quantum Processor*

- P.S7.6 M Mičuda, R Stárek, M Miková, I Straka, M Dušek, P Marek, M Ježek, R Filip, J Fiurášek (Olomouc, Czech Republic)  
*Experimental Implementation of Linear-Optical Quantum Logic Circuits*
- P.S7.7 A Syssoeva (Dolgoprudny, Russia; Moscow, Russia), M V Fedorov (Moscow, Russia)  
*Quantum Teleportation in Terms of Creation Operators*
- P.S7.8 N A Lozing, M G Gladush (Moscow, Russia; Troitsk, Moscow, Russia), I Yu Eremchev (Troitsk, Moscow, Russia), A V Naumov (Moscow, Russia; Troitsk, Moscow, Russia)  
*Luminescent Microscopy of Single Pairs of Quantum Dots with a Nanometer Spatial Resolution*
- P.S7.9 Y-T Chough (Gwangju, South Korea)  
*Formation of a Stationary Light Pulse in a Doppler-Broadened EIT Medium*

### Seminar 8: Fiber Optics

- P.S8.1 A Kir'yanov V (León, Mexico; Moscow, Russia), M Paul Ch. (Kolkatta, India)  
*Effect of Electron Bombardment on Optical Properties of Bismuth-Doped Hafnia-Yttria-Alumina-Silicate Fiber*
- P.S8.2 E A Evmenova, D S Kharenko, A G Kuznetsov, S I Kablukov, S A Babin (Novosibirsk, Russia)  
*Fiber Source for Pumping a Fiber-Optical Parametric Generator at  $\sim 800$  nm*

### Seminar 9: Extreme Light Technologies, Science, and Applications

- P.S9.1 N S Lin, L X Han, M Jiang, Y J Li (Beijing, China)  
*The Dependence of the Peak Width of the Energy Distribution on the Profile of a Combined Field*
- P.S9.2 D D Su, M Jiang, Y J Li (Beijing, China)  
*Creation and Annihilation of Particles in External Fields*
- P.S9.3 S Luo, Z Demircioglu, T Halter, A Hoos, B C Walker (Newark DL, USA)  
*MeV Photoelectron Spectrometer for Ultrastrong field Laser-Atomic and Molecular Interactions: Next Generation Spectroscopy* (invited talk)

- P.S9.4 A M Fedotov (Moscow, Russia), A D Panferov, S O Pirogov, S A Smolyansky (Saratov, Russia)  
*Self-Consistent Kinetic Description of the  $e^-e^+\gamma$  Plasma Generated from Vacuum by Strong Laser Field*
- P.S9.5 W J Waters, B King (Plymouth, UK)  
*Pulse Tomography Using the Signature of Photon-Photon Scattering*