

# 26th International Laser Physics Workshop (LPHYS'17)

July 17–21, 2017, Kazan, Russia

# PROGRAM



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July 6, 2017

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## Background

The 26<sup>th</sup> annual International Laser Physics Workshop (LPHYS'17) is being held from July 17 to July 21, 2017, in the City of Kazan, Russia, at the Korston Club Hotel, hosted by the Kazan E K Zavoisky Physical-Technical Institute (KPhTI).

LPHYS'17 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 Iguacu 2010 (Brazil), Sarajevo 2011, Calgary 2012, Prague 2013, Sofia 2014, Shanghai 2015 and Yerevan 2016. The total number of participants is expected to be about 300. 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'17 has been listed on the OSA industry Calendar of Events.

## General Information

### Organizers



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



International Laser Center, Moscow, Russia



National Research Nuclear University MEPhI, Moscow, Russia



Kazan E K Zavoisky Physical-Technical Institute (KPhTI), Kazan, Tatarstan, Russia

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| <b>Dmitry K Zharkov</b>            | E K Zavoisky Physical-Technical Institute, Kazan,<br>Russia               |

# Meeting Timetable and Location of the Events

## Location of the Events

### *Korston Club Hotel*

| No. | Name           |
|-----|----------------|
| H1  | Prokofiev 1-2  |
| H2  | Pushkin 2      |
| H3  | Lermontov      |
| H4  | Chehov         |
| H5  | Shostakovich 1 |
| H6  | Prokofiev 3    |
| H7  | Pushkin 1      |
| H8  | Pushkin        |
| H9  | Shostakovich 2 |

## 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 |
| S2&9 | Seminar 2&9: Joined Session of Seminar 2 and Seminar 9           |
| CR   | Closing Remarks  |

## Schedule

### Monday, 17 July, 2017

|             | S1                      | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S2&9 |
|-------------|-------------------------|----|----|----|----|----|----|----|----|------|
| 09:15-10:00 | Opening Remarks: Hall 8 |    |    |    |    |    |    |    |    |      |
| 10:00-10:45 | Plenary Session: Hall 8 |    |    |    |    |    |    |    |    |      |
| 10:45-11:15 | Coffee Break            |    |    |    |    |    |    |    |    |      |
| 11:15-12:30 | H1                      | H2 |    |    | H5 | H6 | H7 |    |    |      |
| 12:30-14:00 | Lunch Break             |    |    |    |    |    |    |    |    |      |
| 14:00-16:00 | H1                      | H2 |    |    | H5 | H6 | H7 |    |    |      |
| 16:00-16:30 | Coffee Break            |    |    |    |    |    |    |    |    |      |
| 16:30-18:30 | H1                      | H2 |    |    | H5 | H6 | H7 |    | H9 |      |
| 19:00-22:00 | Welcome Party           |    |    |    |    |    |    |    |    |      |

### Tuesday, 18 July, 2017

|             | S1                      | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S2&9 |
|-------------|-------------------------|----|----|----|----|----|----|----|----|------|
| 09:15-10:00 | Plenary Session: Hall 8 |    |    |    |    |    |    |    |    |      |
| 10:00-10:45 | Plenary Session: Hall 8 |    |    |    |    |    |    |    |    |      |
| 10:45-11:15 | Coffee Break            |    |    |    |    |    |    |    |    |      |
| 11:15-12:30 | H1                      | H2 | H3 | H4 | H5 | H6 | H7 |    | H9 |      |
| 12:30-14:00 | Lunch Break             |    |    |    |    |    |    |    |    |      |
| 14:00-16:00 | H1                      | H2 | H3 | H4 | H5 | H6 | H7 |    | H9 |      |
| 17:30-20:00 | Poster Session          |    |    |    |    |    |    |    |    |      |

**Wednesday, 19 July, 2017**

|             | S1                      | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S2&9 |
|-------------|-------------------------|----|----|----|----|----|----|----|----|------|
| 09:15-10:00 | Plenary Session: Hall 8 |    |    |    |    |    |    |    |    |      |
| 10:00-10:45 | Plenary Session: Hall 8 |    |    |    |    |    |    |    |    |      |
| 10:45-11:15 | Coffee Break            |    |    |    |    |    |    |    |    |      |
| 11:15-12:30 | H1                      | H2 |    |    | H5 | H6 | H7 | H4 | H9 |      |
| 12:30-14:00 | Lunch Break             |    |    |    |    |    |    |    |    |      |
| 14:00-16:00 | H1                      | H2 |    |    | H5 | H6 | H7 | H4 | H9 |      |
| 16:00-16:30 | Coffee Break            |    |    |    |    |    |    |    |    |      |
| 16:30-18:30 | H1                      | H2 |    |    |    | H6 | H7 | H4 | H9 |      |
| 19:30-22:00 | Official Dinner         |    |    |    |    |    |    |    |    |      |

**Thursday, 20 July, 2017**

|             | S1                      | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S2&9 |
|-------------|-------------------------|----|----|----|----|----|----|----|----|------|
| 09:15-10:00 | Plenary Session: Hall 8 |    |    |    |    |    |    |    |    |      |
| 10:00-10:45 | Plenary Session: Hall 8 |    |    |    |    |    |    |    |    |      |
| 10:45-11:15 | Coffee Break            |    |    |    |    |    |    |    |    |      |
| 11:15-12:30 | H1                      | H2 |    |    |    |    | H7 |    |    |      |
| 12:30-14:00 | Lunch Break             |    |    |    |    |    |    |    |    |      |
| 14:00-16:00 | H1                      |    |    |    |    |    | H7 |    |    | H2   |
| 16:00-16:30 | Coffee Break            |    |    |    |    |    |    |    |    |      |
| 16:30-18:30 | H1                      | H2 |    |    |    |    |    |    |    |      |
| 18:30-18:45 | Closing Remarks: Hall 2 |    |    |    |    |    |    |    |    |      |

**Friday, 21 July, 2017**

|             | S1                                     | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S2&9 |
|-------------|--|----|----|----|----|----|----|----|----|------|
| 10:00-14:00 | LPHYS'17 Kazan Sightseeing Guided Tour |    |    |    |    |    |    |    |    |      |

## Opening Remarks

Monday, 17 July, 2017

**OR.1 (09:15 – 10:00)**

**Chair:** Vanderlei S. Bagnato (Brazil)

**OR.1.1** V S Bagnato (São Carlos, Brazil)  
09:15 – 09:25 *Opening Remarks*

**OR.1.2** M Salakhov (Kazan, Russia)  
09:25 – 09:40 *Greetings from Tatarstan Government and Academy of Sciences*

## Plenary Session

Monday, 17 July, 2017

**Pl.1 (10:00 – 10:45)**

**Chair:** Olga Kocharovskaya (USA)

**Pl.1.1** M O Scully (Waco TX, USA; Princeton NJ, USA)  
10:00 – 10:45 *The Quantum Theory of the Laser: Half a Century Later*

Tuesday, 18 July, 2017

**Pl.2 (09:15 – 10:00)**

**Chair:** Sergey Babin (Russia)

**Pl.2.1** S K Nemirovskii (Novosibirsk, Russia)  
09:15 – 10:00 *Statistical Signature of Vortex Filaments: Dog or Tail?*

**Pl.3 (10:00 – 10:45)**

**Chair:** Sergei Kulik (Russia)

**Pl.3.1** B Englert (Singapore, Singapore)  
10:00 – 10:45 *What do the Data Tell Us? A Bayesian Answer*

Wednesday, 19 July, 2017

**Pl.4 (09:15 – 10:00)**

**Chair:** Olga Kosareva (Russia)

**Pl.4.1** S Tzortzakis (Doha, Qatar; Heraklion, Greece)  
09:15 – 10:00 *Sculptured Ultrashort Intense Laser and THz Beams*



**PL.5 (10:00 – 10:45)****Chair:** Alexey Kalachev (Russia)

- PL.5.1**      S A Moiseev (Kazan, Russia)  
10:00 – 10:45    *Photon Echo Quantum Memory for Optical and Microwave Spectral Ranges*

**Thursday, 20 July, 2017****PL.6 (09:15 – 10:00)****Chair:** Christoph H. Keitel (Germany)

- PL.6.1**      D Charalambidis (Heraklion, Greece; Szeged, Hungary)  
09:15 – 10:00    *Advanced Laser Driven Radiation and Particle Sources: How to, What for and a Virtual Tour Through the ELI-ALPS Project*

**PL.7 (10:00 – 10:45)**

- PL.7.1**      N N Rosanov (St.-Petersburg, Russia), A V Naumov (Troitsk, Russia)  
10:00 – 10:25    *Awards Ceremony*

# 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,<br>Moscow, Russia |

**Monday, 17 July, 2017**

**S1.1 (11:15 – 12:30)**

**Chair:** Alexey Kalachev (Russia)

**S1.1.1**      A Foehlich (Potsdam, Germany; Berlin, Germany)  
11:15 – 11:40    *Ultrafast Independent N-H and N-C Bond Deformation Investigated with Femtosecond Time Resolved Resonant Inelastic X-Ray Scattering* (invited talk)

**S1.1.2**      A V Mitrofanov (Skolkovo, Moscow Region, Russia; Moscow, Russia; Shatura, Russia), A A Voronin (College Station, TX, USA; Skolkovo, Moscow Region, Russia; Moscow, Russia; Kazan, Russia), D A Sidorov-Biryukov, A B Fedotov (Skolkovo, Moscow Region, Russia; Moscow, Russia; Kazan, Russia), A Pugžlys, V Shumakova, S Ališauskas, A Baltuška (Vienna, Austria), A M Zheltikov (College Station, TX, USA; Skolkovo, Moscow Region, Russia; Moscow, Russia; Kazan, Russia)  
11:40 – 12:05    *Optical Solitons in Air* (invited talk)

**S1.1.3**      S Shwartz (Ramat Gan, Israel)  
12:05 – 12:30    *X-Ray into Ultraviolet Parametric Down-Conversion and Potential Applications for Solid-State Physics* (invited talk)

**S1.2 (14:00 – 16:00)**

**Chair:** Sharon Shwartz (Israel)

**S1.2.1**      T R Akhmedzhanov (College Station, TX, USA), V A Antonov (Nizhny Novgorod, Russia), M O Scully, O Kocharovskaya (College Station, TX, USA)  
14:00 – 14:25    *Two Paths Towards Intense Attosecond Coherent X-Ray Sources Based on Laser Modulation of the Resonant Transition* (invited talk)

**S1.2.2**      R B Liu (New Territories, Hong Kong)  
14:25 – 14:55    *Berry Phases of Quantum Trajectories in High-Order THz Sideband Generation* (invited talk)

- S1.2.3** R N Shakhmuratov (Kazan, Russia)  
14:55 – 15:20 *Transformation of the Frequency-Modulated Continuous-Wave Field Into a Train of Short Pulses by Resonant Filtering Through Cold and Thermal Ensembles of Alkali Atoms* (invited talk)
- S1.2.4** F G Vagizov, R N Shakhmuratov (Kazan, Russia)  
15:20 – 15:40 *Application of Mössbauer Effect to Study Subnanometer Harmonic Displacements in a Thin Solid* (invited talk)
- S1.2.5** G Y Wang, W T Liao (Taoyuan, Taiwan)  
15:40 – 16:00 *Generation of Short X-Ray Pulses from a Mössbauer Source Using Magnetic Switchings* (invited talk)

### S1.3 (16:30 – 18:30)

**Chair:** Aleksei Zheltikov (Russia)

- S1.3.1** VI V Kocharovsky, E R Kocharovskaya (Nizhny Novgorod, Russia),  
16:30 – 16:55 V V Kocharovsky (College Station, TX, USA; Nizhny Novgorod, Russia)  
*Superradiant Lasing in Media with Strong Inhomogeneous Broadening of a Spectral Line* (invited talk)
- S1.3.2** E R Kocharovskaya, A M Feigin, A S Gavrillov, E M Loskutov,  
16:55 – 17:10 D N Mukhin, A F Seleznev (Nizhny Novgorod, Russia), V V Kocharovsky (College Station TX, USA; Nizhny Novgorod, Russia),  
VI V Kocharovsky (Nizhny Novgorod, Russia)  
*Space-Time Empirical Modes Instead of Cavity Modes in Lasers with Complicated Dynamical Spectra* (invited talk)
- S1.3.3** T Gavara, C Ohae, K Nakagawa, K Minoshima, M Katsuragawa  
17:10 – 17:35 (Tokyo, Japan)  
*Injection-Locked Tunable Continuous-Wave Laser and Its Application to Generation of Ultrafast Pulses Above 100 THz Repetition Rate* (invited talk)
- S1.3.4** N A Veretenov, S V Fedorov, N N Rosanov (St.-Petersburg, Russia)  
17:35 – 18:00 *3D-Topological Solitons in Laser Systems* (invited talk)
- S1.3.5** A S Kuraptsev, I M Sokolov (St.-Petersburg, Russia)  
18:00 – 18:20 *Single-Photon Superradiance in a Dilute and Cold Atomic Ensemble*
- S1.3.6** S V Kurilchik (Minsk, Belarus; Kazan, Russia), M P Demesh, V E Kisel, N V Kuleshov (Minsk, Belarus), A S Nizamutdinov, R D Aglyamov, S L Korableva, A K Naumov, V V Semashko (Kazan, Russia)  
18:20 – 18:30 *Spectroscopy and Laser Action of Nd:LiLu<sub>x</sub>Y<sub>1-x</sub>F<sub>4</sub> Crystals*

**Tuesday, 18 July, 2017****S1.4 (11:15 – 12:30)****Chair:** Renbao Liu (Hong Kong)

- S1.4.1**     P R Hemmer (College Station TX, USA)  
11:15 – 11:40     *Biosensing with Nanodiamonds* (invited talk)
- S1.4.2**     M Nesladek (Hasselt, Belgium)  
11:40 – 12:05     *Photophysics of Electronic Transitions on NV Centre in Diamond: Towards Quantum State Readout* (invited talk)
- S1.4.3**     A V Akimov (College Station TX, USA; Moscow, Russia)  
12:05 – 12:30     *Quantum Optics with GeV Color Center in Diamond* (invited talk)

**S1.5 (14:00 – 16:00)****Chair:** Alexander Föhlisch (Germany)

- S1.5.1**     C H Keitel (Heidelberg, Germany)  
14:00 – 14:30     *X-Ray Quantum Control with Highly Charged Ions and Nuclei* (invited talk)
- S1.5.2**     S M Cavaletto, V Stooss, A Blaettermann, P Birk, C Ott, Z Harman,  
14:30 – 14:55     C H Keitel, T Pfeifer (Heidelberg, Germany)  
*Reconstruction and Control of Strong-Field-Excited Quantum Dynamics* (invited talk)
- S1.5.3**     A Semerok (Gif Sur Yvette, France)  
14:55 – 15:25     *Lasers for nuclear technologies* (invited talk)
- S1.5.4**     R P de Groote (Leuven, Belgium)  
15:25 – 15:50     *Understanding the Structure of Atomic Nuclei Using Laser Spectroscopy* (invited talk)
- S1.5.5**     I I Farukhshin, A S Nizamutdinov, V V Semashko, S L Korableva,  
15:50 – 16:00     M A Marisov (Kazan, Russia)  
*External Modulation of Active Losses in Active Media  $LiLu_{0.7}Yo_{0.3}F_4:Ce^{3+}$  and Ultra-Short Pulse Lasing*

**Wednesday, 19 July, 2017****S1.6 (11:15 – 12:30)****Chair:** Philip Hemmer (USA)

- S1.6.1**     K Hakuta (Tokyo, Japan)  
11:15 – 11:40     *Cavity QED on an Optical Nanofiber* (invited talk)

- S1.6.2** 11:40 – 12:05 A V Naumov (Troitsk, Russia; Moscow, Russia), A A Gorshelev (Troitsk, Russia), M G Gladush (Troitsk, Russia; Moscow, Russia), I Yu Eremchev (Troitsk, Russia), L Kador, J Köhler (Bayreuth, Germany)  
*Fluorescence Nanoscopy with Single Quantum Emitters and Its Applications for Local Fields Mapping* (invited talk)
- S1.6.3** 12:05 – 12:30 A Weis, V Lebedev, S Colombo, V Dolgovskiy, Z D Grujić (Fribourg, Switzerland)  
*Detecting, Characterizing and Imaging Magnetic Nanoparticles by Optical Magnetometry* (invited talk)

### S1.7 (14:00 – 16:00)

**Chair:** Alexey Akimov (Russia)

- S1.7.1** 14:00 – 14:30 A Classen, R Schneider, D Bhatti, T Mehringer, J von Zanthier (Erlangen, Germany)  
*Quantum Far Field Diffractive Imaging with Incoherent VUV-Light* (invited talk)
- S1.7.2** 14:30 – 15:00 R Nair, X-M Lu, S Z Ang, M Tsang (Singapore, Singapore)  
*Quantum Information Kills Rayleigh's Criterion* (invited talk)
- S1.7.3** 15:00 – 15:20 D V Sychev (Moscow, Russia), A E Ulanov (Dolgoprudny, Russia; Moscow, Russia), I A Fedorov (Moscow, Russia), A A Pushkina, M W Richards (Calgary, Canada), P Grangier (Palaiseau, France), A I Lvovsky (Calgary, Canada; Moscow, Russia)  
*Generation and Breeding Quantum Optical Schrödinger's Cats* (invited talk)
- S1.7.4** 15:20 – 15:40 E E Mikhailov, M Zhang, M A Guidry, I Novikova (Williamsburg VA, USA), R N Lanning, Z Xiao, J P Dowling (Baton Rouge LA, USA)  
*Improving Squeezed Vacuum Generation in Hot Rb Vapor with Multi-Pass Configuration* (invited talk)
- S1.7.5** 15:40 – 16:00 A Duplinskiy, V Ustimchik, A Kanapin, V Kurochkin, Y Kurochkin (Moscow, Russia)  
*Fast Polarization Preparation and Measurement Optical Scheme for QKD Applications* (invited talk)

**S1.8 (16:30 – 18:30)****Chair:** Irina Novikova (USA)

**S1.8.1** N Kukharchyk, D Sholokhov (Saarbrücken, Germany), O Morozov, S L Korableva (Kazan, Russia), D A Sobgayda, N A Nizov, V A Nizov, L A Gushchin, I V Zelensky, R A Akhmedzhanov (Nizhny Novgorod, Russia), A A Kalachev (Kazan, Russia), P A Bushev (Saarbrücken, Germany)

16:30 – 16:50

*Studying Isotopically Pure Crystals for Raman Quantum Memories* (invited talk)

**S1.8.2** B S Ham (Gwangju, South Korea)

16:50 – 17:15

*AC Stark Echoes for Quantum Memories* (invited talk)

**S1.8.3** B Z Malkin, N M Abishev, E I Baibekov (Kazan, Russia), D S Pytalev, K N Boldyrev, M N Popova (Troitsk, Russia), M Bettinelli (Verona, Italy)

17:15 – 17:40

*Impact of Random Strains on Shapes of Spectral Lines and Quantitative Control of Laser Crystals Quality* (invited talk)

**S1.8.4** K Ichimura, H Goto, M Kujiraoka (Kawasaki, Japan)

17:40 – 18:00

*Stability in optical spectra of individual rare-earth ions in a crystal* (invited talk)

**S1.8.5** B Car, L Veissier, A Louchet-Chauvet, J-L Le Gouët, T Chanelière (Orsay, France)

18:00 – 18:15

*Selective Optical Excitation of the Erbium Electron-Nuclear Superhyperfine Interaction* (invited talk)

**S1.8.6** D A Sobgayda, R A Akhmedzhanov, L A Gushchin (Kazan, Russia; Nizhny Novgorod, Russia), A A Kalachev (Kazan, Russia), N A Nizov, V A Nizov (Nizhny Novgorod, Russia), I V Zelensky (Kazan, Russia; Nizhny Novgorod, Russia)

18:15 – 18:30

*Electromagnetically induced transparency in  $^{143}\text{Nd}^{3+}:\text{Y}^7\text{LiF}_4$  around the ZEFOZ point* (invited talk)

**Thursday, 20 July, 2017****S1.9 (11:15 – 12:30)****Chair:** Nir Davidson (Israel)

**S1.9.1** V M Shalaev (West Lafayette IN, USA)

11:15 – 11:40

*Plasmonic Metamaterials Reimagined* (invited talk)

**S1.9.2** A Boltasseva (West Lafayette IN, USA)

11:40 – 11:50

*Oxides, Nitrides and Carbides as New Materials for Nanophotonic and Plasmonic Devices* (invited talk)

**S1.9.3** 11:50 – 12:15 B Lukiyanchuk (Singapore, Singapore; Moscow, Russia), R Paniagua-Domínguez (Singapore, Singapore), I Minin, O Minin (Tomsk, Russia), Z Wang (Bangor, UK)  
*Refractive Index Less than Two: Photonic Nanojets Yesterday, Today and Tomorrow* (invited talk)

### S1.10 (14:00 – 16:00)

**Chair:** Antoine Weis (Switzerland)

**S1.10.1** 14:00 – 14:30 N Davidson (Rehovot, Israel)  
*Coherent Diffusion of Slow and stored Light* (invited talk)

**S1.10.2** 14:30 – 14:50 N Prajapati, G V Romanov, I Novikova (Williamsburg VA, USA)  
*Many Facets of Four-Wave Mixing in a Hot Rb Vapor* (invited talk)

**S1.10.3** 14:50 – 15:15 M M Kazemi, M Namboodiri, P Donfack, J Kiefer, A Materny (Bremen, Germany)  
*Femtosecond Time-Resolved Coherent Anti-Stokes Raman Spectroscopy Study of the Ultrafast Vibrational Dynamics of Ionic Liquids* (invited talk)

**S1.10.4** 15:15 – 15:45 A V Taichenachev, V I Yudin, S N Bagayev (Novosibirsk, Russia)  
*Recent Advances in High-Precision Spectroscopy of Ultracold Atoms and Ions* (invited talk)

**S1.10.5** 15:45 – 16:00 K A Prokhorov, E A Sagitova, A A Averin, G Yu Nikolaeva, A V Baimova, L A Novokshonova, P N Brevnov, P P Pashinin (Moscow, Russia)  
*Raman Spectroscopy of Novel UHMW Polyethylene-Based Nanocomposites with Nanographite and Nanoclay*

### S1.11 (16:30 – 18:30)

**Chair:** Arnulf Materny (Germany)

**S1.11.1** 16:30 – 16:50 S Lidström (Stockholm, Sweden), R E Allen (College Station, TX, USA)  
*Light, the Universe, and Everything – the Greatest Challenges and Opportunities in Science, Including Quantum Optics* (invited talk)

**S1.11.2** 16:50 – 17:10 A V Taichenachev, V I Yudin (Novosibirsk, Russia)  
*Mass Defect Effects in Atomic Clocks* (invited talk)

**S1.11.3** 17:10 – 17:30 R Tagaras, J Weng, R E Allen (College Station, TX, USA)  
*Ultrafast Phase Transitions in Advanced Materials, Including Light-Induced Superconductivity* (invited talk)

- S1.11.4**      P N Melentiev, A S Kalmykov, A S Gritchenko, A E Afanasiev, V  
17:30 – 17:50    I Balykin (Troitsk, Russia), A Baburin, E Ryzhova, I A Ryzhikov,  
I Filippov, I A Rodionov, I Nechepurenko, A Dorofeenko, A P  
Vinogradov (Moscow, Russia)  
*New Type of Plasmonic Nanolaser Based on a Hybrid Mode of  
Plasmonic Crystal* (invited talk)
- S1.11.5**      I V Smetanin, A I Erokhin, K V Kovalenko (Moscow, Russia)  
17:50 – 18:05    *Frequency Up-Shift in the Stimulated Thermal Scattering Under Two-  
Photon Absorption in Liquids and Colloids of Metal Nanoparticles*
- S1.11.6**      M S Aksenteva (Moscow, Russia)  
18:05 – 18:25    *Laser Physics in “Uspekhi Fizicheskikh Nauk” (“Physics-Uspekhi”)  
Journal: an Attempt of Bibliometric Analysis Based on Web of  
Science Data* (invited talk)



## Seminar 2: Strong Field & Attosecond Physics

### Co-Chairs

**Wilhelm Becker**

Max Born Institute for Nonlinear Optics and  
Short Pulse Spectroscopy, Berlin, Germany

**Jens Biegert**

Institute of Photonic Sciences, Barcelona, Spain

**Mikhail V. Fedorov**

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

**Monday, 17 July, 2017**

**S2.1 (11:15 – 12:30)**

**Chair:** Uwe Thumm (USA)

**S2.1.1** 11:15 – 11:45 S Fuchs, J J Abel, M Wuensche, J Nathanael, G G Paulus (Jena, Germany)  
*XUV Coherence Tomography with Nanoscale Resolution* (invited talk)

**S2.1.2** 11:45 – 12:10 J M Rost (Dresden, Germany)  
*Universal Photo Electron Cutoff Energy for Ionization with Intense Few Cycle Pulses: From Atoms over Clusters and Nanoplasmas to Liquids* (invited talk)

**S2.1.3** 12:10 – 12:25 A A Silaev, A A Romanov, N V Vvedenskii (Nizhny Novgorod, Russia)  
*Low-Frequency Current Excitation During Multiphoton Ionization of Atoms by Two-Color Laser Pulses* (invited talk)

**S2.2 (14:00 – 16:00)**

**Chair:** Gerhard Georg Paulus (Germany)

**S2.2.1** 14:00 – 14:30 S Varró (Budapest, Szeged, Hungary)  
*Stimulated Emission and Multiphoton Processes Viewed from a Historical Perspective* (invited talk)

**S2.2.2** 14:30 – 14:55 S A Kelvich (Moscow, Russia), W Becker (Berlin, Germany; Moscow, Russia), S P Goreslavski (Moscow, Russia)  
*The Low-Energy Structure in Above-Threshold Ionization as a Catastrophe* (invited talk)

- S2.2.3**      M Yu Emelin (Moscow, Russia; Nizhny Novgorod, Russia), L A Smirnov (Nizhny Novgorod, Russia), M Yu Ryabikin (Moscow, Russia; Nizhny Novgorod, Russia)  
14:55 – 15:15      *Pulse Front Optimization for Highly Efficient High-Frequency Atomic Stabilization in Relativistically Intense Laser Field* (invited talk)
- S2.2.4**      A S Maxwell, A Al-Jawahiry (London, UK), T Das (Dresden, Germany; London, UK), C Faria (London, UK)  
15:15 – 15:40      *Coulomb-Corrected Quantum Interference in Above-Threshold Ionization: Working Towards Multi-Trajectory Electron Holography* (invited talk)

### **S2.3 (16:30 – 18:30)**

**Chair:** Adrian Pfeiffer (Germany)

- S2.3.1**      U Thumm (Manhattan KS, USA)  
16:30 – 17:00      *Time-Resolved Photoemission from Surfaces and Nanoparticles* (invited talk)
- S2.3.2**      C Heide, T Higuchi, K Ullmann, H B Weber, P Hommelhoff (Erlangen, Germany)  
17:00 – 17:30      *Light-Field-Driven Currents in Graphene* (invited talk)
- S2.3.3**      A S Kornev, B A Zon (Voronezh, Russia)  
17:30 – 17:50      *Polarisation Bremsstrahlung in Laser-Assisted Electron-Atom Scattering* (invited talk)
- S2.3.4**      N Tsatrafyllis, I K Kominis (Heraklion, Greece), I A Gonoskov (Halle, Germany), P Tzallas (Heraklion, Greece)  
17:50 – 18:05      *Quantum Optical Signatures in Strong-Field Laser Physics* (invited talk)
- S2.3.5**      C Lv, H Sang, B Xie (Beijing, China)  
18:05 – 18:25      *Fast Electrons Transport in Plasma by Strong Laser Interaction* (invited talk)

## **Tuesday, 18 July, 2017**

### **S2.4 (11:15 – 12:30)**

**Chair:** Artem Rudenko (USA)

- S2.4.1**      A V Bogatskaya, A M Popov, E A Volkova (Moscow, Russia)  
11:15 – 11:40      *Observation of KH Stabilization of Atom in Strong Laser Field via the Spontaneous Emission* (invited talk)
- S2.4.2**      A M Popov, A V Bogatskaya, E A Volkova (Moscow, Russia)  
11:40 – 12:05      *Odd and Even Harmonics Generation by an Atom in High-Intensity Laser Field* (invited talk)

**S2.4.3**      C R McDonald, G Vampa, P B Corkum, T Brabec (Ottawa, Canada)

12:05 – 12:25

*Intense Laser Solid State Physics: Unraveling the Difference Between Semiconductors and Dielectrics* (invited talk)

### **S2.5 (14:00 – 16:00)**

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

**S2.5.1**      C Huang (Chongqing, China), O I Tolstikhin (Dolgoprudny, Russia),  
T Morishita (Tokyo, Japan)

14:00 – 14:30

*Strong-Field Subcycle Control of Dissociation Dynamics via Exceptional Points of Molecules in an Electric Field* (invited talk)

**S2.5.2**      A Rudenko (Manhattan KS, USA)

14:30 – 15:00

*Time-Resolved Imaging of Strong-Field-Induced Nuclear Wave Packets in Halomethane Molecules* (invited talk)

**S2.5.3**      D Rolles (Manhattan KS, USA)

15:00 – 15:30

*Studying Structure and Dynamics of Polyatomic Molecules by Coulomb Explosion Imaging* (invited talk)

**S2.5.4**      Y Mi, N Camus, L Fechner, M Laux, R Moshhammer, T Pfeifer  
(69117 Heidelberg, Germany)

15:30 – 15:55

*Electron-Nuclear Coupling Through Autoionizing States After Strong-Field Excitation of H<sub>2</sub> Molecules* (invited talk)

## **Wednesday, 19 July, 2017**

### **S2.6 (11:15 – 12:30)**

**Chair:** Turgay Uzer (USA)

**S2.6.1**      V V Strelkov (Moscow, Russia), M A Fareed, N Thiré (Varennes, Canada), S Mondal (Varennes, Canada; Szeged, Hungary), M Singh (Varennes, Canada), B E Schmidt (Varennes, Canada; Montréal, Canada), F Légaré, T Ozaki (Varennes, Canada)

11:15 – 11:35

*High Harmonic Generation from Dressed Autoionizing States: Theory and Experiment* (invited talk)

**S2.6.2**      U Saalmann, Q Ning, M Baghery, J M Rost (Dresden, Germany)

11:35 – 12:00

*Dynamic Stark Shift in High-Frequency Laser Pulses: From Dynamic Interference to Non-Adiabatic Ionization* (invited talk)

**S2.6.3**      A El-Khawaldeh, H-J Kull (Aachen, Germany)

12:00 – 12:20

*Laser-Driven Quantum-Plasma Dynamics in Small Metallic Atomic Clusters* (invited talk)

**S2.7 (14:00 – 16:00)****Chair:** Vasily Strelkov (Russia)

- S2.7.1** C Leithold, J Reislöhner, A N Pfeiffer (Jena, Germany)  
14:00 – 14:15 *Laser-Induced Grating Spectroscopy with Absolute Time Information* (invited talk)
- S2.7.2** A T Uzer (Atlanta GA, USA)  
14:15 – 14:40 *Recollision Scenario Without Tunneling: Role of the Ionic Core Potential* (invited talk)
- S2.7.3** S V Popruzhenko (Dresden, Germany)  
14:40 – 15:00 *Strong-Field Excitation of Bound States: from Multiphoton Resonances to Frustrated Tunneling* (invited talk)
- S2.7.4** K Z Hatsagortsyan, M Klaiber, C H Keitel (Heidelberg, Germany)  
15:00 – 15:25 *Under-the-Barrier Recollisions in Strong Field Ionization* (invited talk)
- S2.7.5** N Camus (Heidelberg, Germany), E Yakaboylu (Heidelberg, Germany; Klosterneuburg, Austria), L Fechner, M Klaiber, M Laux, Y Mi, K Z Hatsagortsyan, T Pfeifer, C H Keitel, R Moshhammer (Heidelberg, Germany)  
15:25 – 15:45 *Experimental Evidence for Wigner's Tunneling Time* (invited talk)

**S2.8 (16:30 – 18:30)****Chair:** Sergey Popruzhenko (Russia)

- S2.8.1** F Cajiao Vélez, J Z Kamiński, K Krajewska (Warsaw, Poland)  
16:30 – 16:50 *Interference-Free and Interference-Dominated Photoionization: Synthesis of Ultrashort and Coherent Single-Electron Wave Packets* (invited talk)
- S2.8.2** S Varro (Budapest, Szeged, Hungary)  
16:50 – 17:20 *Two physical realizations of regular phase coherent states: Rydberg atoms in a microwave; and interaction of two quantized circularly polarized radiation modes with free electrons.* (invited talk)
- S2.8.3** A Emmanouilidou (London, UK)  
17:20 – 17:45 *Non-Dipole Recollision-Gated Double Ionization and Observable Effects* (invited talk)
- S2.8.4** B Liu (München, Germany)  
17:45 – 18:05 *Laser Driven Ion Wave Breaking Acceleration in Near-Critical Relativistic Self-Transparent Plasma* (invited talk)

**Thursday, 20 July, 2017****S2.9 (11:15 – 12:30)****Chair:** Jan Michael Rost (Germany)

- S2.9.1**      H R Reiss (Berlin, Germany; Washington DC, USA)  
11:15 – 11:45    *Fields, not Gauges* (invited talk)
- S2.9.2**      D Bauer, T Deffge (Rostock, Germany), K Hansen (Aarhus, Denmark)  
11:45 – 12:10    *Simulations of Strong-Field Physics in Solid Slabs Beyond the Single Active Electron* (invited talk)
- S2.9.3**      H-J Kull, A El-Khawaldeh (Aachen, Germany)  
12:10 – 12:30    *Classical Plasma Dynamics of Mie-Oscillations in Atomic Clusters* (invited talk)

**S2.10 (16:30 – 18:30)****Chair:** Howard Reiss (Germany)

- S2.10.1**      Y Kassimi, P É Chantrel, M Piché, B Witzel (Québec City, Canada)  
16:30 – 16:50    *Amplification of 10  $\mu\text{m}$  Light with a 2  $\mu\text{m}$  Optical Pumped CO<sub>2</sub> Laser* (invited talk)
- S2.10.2**      A Houard (Palaiseau, France), J P Wolf, J Kasparian (Geneva, Switzerland), K Michel, T Metzger (München, Germany), B Esmler (Les Mureaux, France), A Mysyrowicz (Palaiseau, France), F Rachidi (Lausanne, Switzerland), M Rubinstein (Yverdon-les-Bains, Switzerland)  
16:50 – 17:10    *The Laser Lightning Rod Project* (invited talk)

## Seminar 3: Laser Biomedical Applications

### Co-Chairs

**Sergey A. Gonchukov** National Research Nuclear University MEPhI,  
Moscow, Russia

**Jürgen Lademann** Charité - Universitätsmedizin, Berlin, Germany

**Tuesday, 18 July, 2017**

**S3.1 (11:15 – 12:30)**

**Chairs:** Olga Baum (Russia) and Jürgen Lademann (Germany)

- S3.1.1** R O Esenaliev (Galveston, TX, USA)  
11:15 – 11:40 *Laser Optoacoustic Diagnostic Platform*
- S3.1.2** M Jelinek, K Jurek, J Drahokoupil, T Kocourek, P Vanek (Prague,  
11:40 – 12:00 Czech Republic), M Tyunina (Oulu, Finland)  
*Ferroelectric Nanocrystalline BTO/Pt for Implants Synthesized by PLD*
- S3.1.3** M E Darvin (Berlin, Germany), C-S Choe (Berlin, Germany;  
12:00 – 12:15 Pyongyang, DPR Korea), J Schleusener, J Lademann (Berlin,  
Germany)  
*Depth Profiling of the Human Stratum Corneum Hydrogen Bound Water Molecule Types *in vivo* Using Confocal Raman Microscopy*
- S3.1.4** T Moguilnaya (Moscow, Russia), A Voloshin (Obolensk, Moscow  
12:15 – 12:30 Region, Russia), A Sheryshev (Moscow, Russia)  
*Investigation of the Lamb Dip in the Near IR Spectra of Water Containing DNA*

**S3.2 (14:00 – 16:00)**

**Chairs:** Maxim Darvin (Germany) and Miroslav Jelínek (Czech Republic)

- S3.2.1** O Baum, A Yuzhakov, A Omelchenko, A Bolshunov, V Siplivy, O  
14:00 – 14:20 Khomchik, E Sobol (Moscow, Russia)  
*Thermomechanical Effect is the Basis of New Laser Technologies in Ophthalmology*
- S3.2.2** J Lademann, H Richter, S Schanzer, M C Meinke, F Knorr, A  
14:20 – 14:35 Patzelt, M E Darvin (Berlin, Germany)  
*Spectroscopic Investigation of Topical Drug Delivery with Nanoparticles*
- S3.2.3** N Davidson (Rehovot, Israel)  
14:35 – 15:00 *Solving the Inverse Scattering Problem Rapidly with Optical Feedback*

- S3.2.4**            G Bastianelli (Pavia, Italy), F Schenardi (Genova, Italy), L Longo  
15:00 – 15:15    (San Marino, San Marino)  
*Laser in Otolaryngology: State of the Art and New Trends*
- S3.2.5**            M Nesladek (Hasselt, Belgium)  
15:15 – 15:40    *Nanodiamonds in Cellular Environment: Synthesis and Physics of  
Detection*
- S3.2.6**            V Kamensky, O S Streltsova, D P Pochtin, V I Bredichin (Nizhny  
15:40 – 15:50    Novgorod, Russia)  
*Urological Stone Destruction Through Local Carbonization*
- S3.2.7**            M Pudovkin, V Semashko, V Pavlov, O Morozov, P Zelenikhin, D  
15:50 – 16:00    Koryakovtzeva (Kazan, Russia)  
*Nanothermometry with the Optically Manipulated Toxicity of  
 $La_{1-x}Pr_xF_3$  Nanoparticles*

## Seminar 4: Physics of Lasers

### Co-Chairs

|                            |  |
|----------------------------|--|
| <b>Mikhail Kalashnikov</b> | Max-Born-Institut, Berlin, Germany                       |
| <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 |

**Tuesday, 18 July, 2017**

**S4.1 (11:15 – 12:30)**

**Chair:** Vadim Semashko (Russia)

**S4.1.1** 11:15 – 11:40 O L Antipov, I D Eranov, R I Kositsyn, D O Kal'yanov (Nizhny Novgorod, Russia), D B Kolker (Novosibirsk, Russia), S S Balabanov (Nizhny Novgorod, Russia)

*Hybrid Fiber-Laser Pumped 2- $\mu\text{m}$  Solid-State Lasers with Mid-IR Parametric Frequency Conversion* (invited talk)

**S4.1.2** 11:40 – 11:55 P G Zverev, G V Shilova, A A Sirotkin (Moscow, Russia)

*Linearly Polarized Dual-Wavelength  $\text{Nd}^{3+}:\text{YLiF}_4$  Laser*

**S4.1.3** 11:55 – 12:10 A A Ionin, I V Kochetov, A Yu Kozlov, A K Kurnosov, A P Napartovich, L V Seleznev, D V Sinitsyn (Moscow, Russia)

*Influence of Plasma-Chemical Processes in Active Medium of Cryogenically Cooled Sealed off Slab CO Laser on Long-Time Dynamics of Laser Characteristics*

**S4.1.4** 12:10 – 12:25 G V Kuptsov, V V Petrov, V A Petrov, A V Laptev, A V Kirpichnikov, E V Pestryakov (Novosibirsk, Russia)

*The Multidisk Diode-Pumped High Power Yb:YAG Laser Amplifier of High-Intensity Laser System with 1 kHz Repetition Rate*

**S4.2 (14:00 – 16:00)**

**Chair:** Oleg Antipov (Russia)

**S4.2.1** 14:00 – 14:30 N Davidson (Rehovot, Israel)

*Digital Degenerate Cavity Laser* (invited talk)

**S4.2.2** 14:30 – 14:45 M Musheghyan, Z Cheng, P Roth, F Lücking, A Assion (Vienna, Austria)

*Ultrabroadband, CEP-Stable Ti:Sapphire Multipass Amplifier*



- S4.2.3** 14:45 – 15:00 O V Shtyrina, S A Efremov, I A Yarutkina, A S Skidin, M P Fedoruk (Novosibirsk, Russia)  
*Optimization of CW Fiber Laser with Strong Nonlinear Cavity Dynamics*
- S4.2.4** 15:00 – 15:20 V V Semashko, O R Akhtyamov, A S Nizamutdinov, M A Marisov (Kazan, Russia), E Sarantopoulou, A C Cefalas (Kazan, Russia; Athens, Greece), A A Shavelev, N F Rakhimov, I R Vakhitov, I V Yanilkin, A I Gumarov, L R Tagirov (Kazan, Russia)  
*Ponderomotive Forces Induced Surface Effects in UV Solid-State Laser Media*
- S4.2.5** 15:20 – 15:35 A K Chernyshov, P A Mikheyev, N N Lunev, V N Azyazov (Samara, Russia)  
*Pressure Shift Coefficient Measurements in an RF Discharge for Ar  $4s[3/2]_2-5p[3/2]_2$  Transition with the Help of Diode-Laser Absorption Spectroscopy*
- S4.2.6** 15:35 – 15:45 O R Akhtyamov, V V Semashko, A S Nizamutdinov, A A Shavelev, N F Rakhimov (Kazan, Russia)  
*On the Possibility of Studying the Amplifying Characteristics of Active Media Using the Z-Scan Technique*

## Seminar 5: Nonlinear Optics & Spectroscopy

### Co-Chairs

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

**Monday, 17 July, 2017**

**S5.1 (11:15 – 12:30)**

**Chair:** Vladimir Makarov (Russia)

**S5.1.1** 11:15 – 11:40 A Mysyrowicz, G Point, A Houard, B Prade, L Arantchouk (Palaiseau, France)

*Long-Lived Electric Discharges in Air Triggered by Filamentation* (invited talk)

**S5.1.2** 11:40 – 12:05 T-J Wang, Y Liu, S Du, N Chen, J Ju, H Sun, J Liu (Shanghai, China), S L Chin (Québec City, Canada), R Li, Z Xu (Shanghai, China)

*Laser Guided Coronas and Its Applications* (invited talk)

**S5.1.3** 12:05 – 12:30 P Polynkin (Tucson AZ, USA)

*Multi-Pulse Scheme for Laser-Guided Electrical Breakdown of Air* (invited talk)

**S5.2 (14:00 – 16:00)**

**Chair:** André Mysyrowicz (France)

**S5.2.1** 14:00 – 14:25 A Savel'ev, A Bychkov, D Pushkarev, D Uryupina, D Shipilo, N Panov, A Lar'kin, E Mitina, A Ushakov (Moscow, Russia), S Khonina, S Karpeev (Samara, Russia), A Shkurinov, A Karabutov (Moscow, Russia), I Babushkin, U Morgner (Darmstadt, Germany), O Kosareva (Moscow, Russia)

*Energy Deposition in Controlled Superfilaments* (invited talk)

**S5.2.2** 14:25 – 14:50 A Couairon, N S Shcheblanov (Palaiseau, France), M E Povarnitsyn, P N Terekhin (Moscow, Russia), S Guizard (Palaiseau, France)

*Quantum-Kinetic Modeling of Laser Energy Deposition in Photoionized Dielectrics* (invited talk)

- S5.2.3** 14:50 – 15:15 L V Seleznev, A A Ionin (Moscow, Russia), D V Mokrousova (Dolgoprudny, Russia; Moscow, Russia), E S Sunchugasheva (Moscow, Russia)  
*Filamentation of Tightly Focused Femtosecond Laser Pulses in Air* (invited talk)
- S5.2.4** 15:15 – 15:40 Y Chen, Z Zhang, M Chen, Z Zhang, J Yu, Z Sheng, J Zhang (Shanghai, China)  
*Spatio-Temporal Structure of Terahertz Radiation from Two-Color Filaments in Air* (invited talk)
- S5.2.5** 15:40 – 16:00 O G Kosareva, N A Panov (Moscow, Russia), V A Andreeva (Minneapolis MN, USA; Moscow, Russia), D E Shipilo (Moscow, Russia), Y Chen (Shanghai, China), S L Chin (Québec City, Canada), I Babushkin, U Morgner (Hannover, Germany), A B Savel'ev (Moscow, Russia)  
*Effect of Initial Pulse Chirp on THz Generation from Two-Color Femtosecond Filaments*

### S5.3 (16:30 – 18:30)

**Chair:** Weiwei Liu (China)

- S5.3.1** 16:30 – 17:00 I A Perezhogin, K S Grigoriev, N N Potravkin, V A Makarov (Moscow, Russia)  
*Transformation of Spin and Orbital Angular Momentum of Light in Sum-Frequency Generation in the Isotropic Chiral Medium* (invited talk)
- S5.3.2** 17:00 – 17:20 V G Arakcheev, A N Bekin, V B Morozov (Moscow, Russia)  
*Spectroscopic Detection of Liquid-Like Phase of Carbon Dioxide in Small Mesopores* (invited talk)
- S5.3.3** 17:20 – 17:40 J Ju, J Liu, H Sun, X Hu (Shanghai, China), Fei Wang (Beijing, China), Y Liu, Y Liu, C Wang, T-J Wang (Shanghai, China), Y Gao, M Huang (Beijing, China), R Li (Shanghai, China), S L Chin (Québec City, Canada), Z Xu (Shanghai, China)  
*Time-Evolution of Laser-Induced Water Condensation* (invited talk)
- S5.3.4** 17:40 – 18:00 S V Chekalin, V O Kompanets (Troitsk, Russia), A E Dormidonov, V P Kandidov (Moscow, Russia)  
*Single-Cycle Light Bullets Formation and Supercontinuum Generation Under Filamentation of Single and Multiple Mid-IR Femtosecond Pulses in LiF* (invited talk)
- S5.3.5** 18:00 – 18:15 V A Trofimov, T M Lysak (Moscow, Russia)  
*Spectrum Evolution of Accelerating or Slowing down Soliton at Its Propagation in a Medium with Gold Nanorods* (invited talk)

- S5.3.6**      S Yu Stremoukhov, A V Andreev (Moscow, Russia)  
 18:15 – 18:30      *Quantum-Mechanical Elaboration to the Description of Elliptical Terahertz Radiation Generation by Extended Gas Interacted with Two-Color Laser Field* (invited talk)

**Tuesday, 18 July, 2017**

**S5.4 (11:15 – 12:30)**

**Chair:** Arnaud Couairon (France)

- S5.4.1**      W Liu (Tianjin, China)  
 11:15 – 11:40      *Strong Confinement of THz Pulse by Femtosecond Laser Filamentation* (invited talk)
- S5.4.2**      I Babushkin, M Kovacev, A Demircan (Hannover, Germany), O Kosareva, A B Savel'ev (Moscow, Russia), U Morgner (Hannover, Germany)  
 11:40 – 12:05      *Mechanism of Brunel Harmonics Generation* (invited talk)
- S5.4.3**      I Thiele, R Nuter, P Gonzales de Alaizia Martinez (Bordeaux, France), S Skupin (Bordeaux, France; Lyon, France)  
 12:05 – 12:30      *Two-Color fs-Laser-Induced Microplasmas: From Point-Like THz Sources to Forward Emission* (invited talk)

**S5.5 (14:00 – 16:00)**

**Chair:** Stefan Skupin (France)

- S5.5.1**      A V Bogatskaya, E A Volkova, A M Popov (Moscow, Russia)  
 14:00 – 14:25      *Polarization Response in Extreme Nonlinear Optics: Quantum-Electrodynamical vs Semiclassical Approach* (invited talk)
- S5.5.2**      V Shumakova, S Ališauskas, C Gollner, A Baltuška (Vienna, Austria), A A Voronin, A V Mitrofanov, D A Sidorov-Biryukov, A M Zheltikov (Moscow, Russia), D Kartashov (Jena, Germany), A Pugžlys (Vienna, Austria)  
 14:25 – 14:50      *Chirp-Controlled Self-Compression of Mid-IR Pulses in Air* (invited talk)
- S5.5.3**      D E Shipilo, N A Panov, V A Andreeva, O G Kosareva, A M Saletsky (Moscow, Russia), H L Xu (Changchun, China), P Polynkin (Tucson AZ, USA)  
 14:50 – 15:05      *Dissipation of high-intense 3.9- $\mu$ m radiation due to atmospheric absorption*
- S5.5.4**      V A Kostin, N V Vvedenskii (Nizhny Novgorod, Russia)  
 15:05 – 15:20      *Ionization Mechanism for Generation of Few-Cycle Electromagnetic Pulses in a Broad Spectral Range*

**S5.5.5** 15:20 – 15:35 L N Alexandrov, M Yu Emelin, M Yu Ryabikin (Nizhny Novgorod, Russia)

*Laser-Induced THz Wave Generation as Instrument for Probing Molecular Rotational Dynamics*

**S5.5.6** 15:35 – 16:00 I V Smetanin, V D Zvorykin, A V Shutov, N N Ustinovsky (Moscow, Russia)

*Coherent Stimulated Raman Self-Scattering of the Ultrashort Laser Pulse in Air as Prospective Mechanism for Electron-Free Filamentation* (invited talk)

### Wednesday, 19 July, 2017

#### S5.6 (11:15 – 12:30)

**Chair:** Tie-Jun Wang (China)

**S5.6.1** 11:15 – 11:40 F Meng, Y Li, B Liu, C Wang, M Hu (Tianjin, China)

*Efficient Dispersive Wave Generation from Novel Hollow-Core Fibers*

**S5.6.2** 11:40 – 12:00 S V Zabotnov, A I Efimova, N B Tkachenko, A V Kolchin, L A Golovan, P K Kashkarov (Moscow, Russia)

*Enhanced Raman Scattering and Third-Harmonic Generation in Silicon Nanowire Arrays*

**S5.6.3** 12:00 – 12:15 A Ionin, I Kinyaevskiy, Yu Klimachev, Yu Kochetkov, A Kozlov, L Seleznev, D Sinitsyn, D Zemtsov (Moscow, Russia)

*Compact Q-Switched Cryogenic Slab RF Discharge CO Laser and Sum-Frequency Conversion of Its Radiation in Nonlinear ZnGeP<sub>2</sub> Crystal*

**S5.6.4** 12:15 – 12:30 N Davidson (Rehovot, Israel)

*Continuous Generation of Delayed Light*

#### S5.7 (14:00 – 16:00)

**Chair:** Pavel Polynkin (USA)

**S5.7.1** 14:00 – 14:15 D V Mokrousova (Dolgoprudny, Russia; Moscow, Russia), A A Ionin (Moscow, Russia), D A Piterimov (Dolgoprudny, Russia), L V Seleznev, A V Shutov, E S Sunchugasheva, N N Ustinovskii, V D Zvorykin (Moscow, Russia)

*Measurement and Control of Ultrashort UV Pulse Parameters*

**S5.7.2** 14:15 – 14:30 V A Trofimov, D Yu Zagursky, I G Zakharova (Moscow, Russia)

*Observation of Substance Absorption Lines in Up-Converted Radiation Transmitted Through Disordered Cover*

- S5.7.3**      P N Melentiev, A E Afanasiev, V I Balykin (Troitsk, Russia)  
14:30 – 14:45      *Nonlinear Optics and Spectroscopy of Single Plasmonic Nanostructure*
- S5.7.4**      I Yu Chestnov (Vladimir, Russia), A V Yulin (St.-Petersburg, Russia), O A Egorov (Jena, Germany), A P Alodjants (St.-Petersburg, Russia)  
14:45 – 15:00      *Dynamics of Microcavity Polaritons in Low-Dimensional Lattices*
- S5.7.5**      S S Kharintsev, A V Kharitonov (Kazan, Russia), S K Saikin (Cambridge MA, USA), A M Alekseev (Moscow, Russia), S G Kazarian (London, UK)  
15:00 – 15:15      *Plasmon-Enhanced Stimulated Raman Scattering Effect Within Refractory Titanium Nitride Nano-Stripes*
- S5.7.6**      A A Smirnov, N A Agareva, N L Ermolaev, A V Afanasiev, S V Gusev, D A Tatarskiy, N M Bityurin (Nizhny Novgorod, Russia)  
15:15 – 15:30      *UV- Induced Polymer-Based Excitonic and Plasmonic Nanocomposites*
- S5.7.7**      L M Kovachev, D A Georgieva, T S Petrov, N N Nedyalkov (Sofia, Bulgaria)  
15:30 – 15:55      *Avalanche Parametric Conversion and White Light from Femtosecond Pulses in Glasses (invited talk)*
- S5.7.8**      D A Georgieva, L M Kovachev (Sofia, Bulgaria)  
15:55 – 16:10      *Polarization Effects of Femtosecond Laser Pulses Due to Cubic Type Nonlinearity in 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,<br>Moscow Region, Russia |
| <b>Eugene Zaremba</b>        | Queen's University, Kingston, ON, Canada                              |

**Monday, 17 July, 2017**

### **S6.1 (11:15 – 12:30)**

**Chairs:** Vanderlei S. Bagnato (Brazil) and Rudolf Grimm (Austria)

**S6.1.1** M Łącki, M A Baranov, A Elben (Innsbruck, Austria), H Pichler  
11:15 – 11:45 (Cambridge MA, USA), P Zoller (Innsbruck, Austria)  
*Nanoscale 'Dark State' Optical Potentials for Cold Atoms*

**S6.1.2** A Cournol, H Lignier, D Comparat, P Pillet (Orsay, France)  
11:45 – 12:15 *Ro-Vibrational Optical Pumping of a Molecular Beam*

### **S6.2 (14:00 – 16:00)**

**Chairs:** Mikhail Baranov (Austria) and Yvan Castin (France)

**S6.2.1** T Debelhoir, N Dupuis (Paris, France)  
14:00 – 14:30 *Simulating Frustrated Magnetism with Spinor Bose Gases*

**S6.2.2** Y Huang, K Chen (Amherst MA, USA), Y Deng (Hefei, China),  
14:30 – 15:00 B V Svistunov (Amherst MA, USA)  
*Trapping Centers at the Superfluid-Mott-Insulator Criticality: Transition between Charge-Quantized States*

**S6.2.3** G V Shlyapnikov (Orsay, France)  
15:00 – 15:30 *Two-Dimensional Bosons in Disorder*

**S6.2.4** A Trombettoni (Trieste, Italy)  
15:30 – 16:00 *Effect of Interactions on the Sensitivity of Matter-Wave Interferometers*

### **S6.3 (16:30 – 18:30)**

**Chairs:** Georgy Shlyapnikov (France) and Andrea Trombettoni (Italy)

**S6.3.1** K Pawłowski (Paris, France; Warsaw, Poland), M Fadel, P Treutlein  
16:30 – 17:00 (Basel, Switzerland), Y Castin, A Sinatra (Paris, France)  
*Mesoscopic Quantum Superpositions in Bimodal Bose-Einstein Condensates: Influence of Decoherence and Finite Temperature*

- S6.3.2**      S H Higashikawa, M U Ueda (Tokyo, Japan)  
 17:00 – 17:30    *Topological Catalysis: Adiabatic Production of Topological Solitons Assisted by Topological Defects*
- S6.3.3**      C Kurtscheid, D Dung, E Busley, J Schmitt, T Damm, F Vewinger  
 17:30 – 18:00    (Bonn, Germany), J Klärs (Zürich, Switzerland), M Weitz (Bonn, Germany)  
*Photon Condensates in Microstructured Trapping Potentials*

## Tuesday, 18 July, 2017

### S6.4 (11:15 – 12:30)

**Chairs:** Ofir E. Alon (Israel) and Boris Svistunov (USA)

- S6.4.1**      N Davidson, N Matzliah, H Edri, R Ozeri (Rehovot, Israel)  
 11:15 – 11:45    *Observation of Optomechanical Strain in a Cold Atomic Cloud*
- S6.4.2**      V S Bagnato (São Carlos, Brazil)  
 11:45 – 12:05    *Momentum and Energy Distribution in a Turbulence Trapped Superfluid*
- S6.4.3**      G-B Jo (Hong Kong, Hong Kong)  
 12:05 – 12:25    *Observation of Symmetry-Protected Topological Phase with Ultracold Fermions*

### S6.5 (14:00 – 16:00)

**Chairs:** Nir Davidson (Israel) and Vladimir Yurovsky (Israel)

- S6.5.1**      R Grimm (Innsbruck, Austria)  
 14:00 – 14:30    *Impurities Strongly Interacting with a Fermi Sea*
- S6.5.2**      Y Castin, A Sinatra (Paris, France), H Kurkjian (Antwerpen, Belgium)  
 14:30 – 15:00    *Phonon Damping in a Pair-Condensed Fermi Gas*
- S6.5.3**      B Bazak, D S Petrov (Orsay, France)  
 15:00 – 15:30    *Five-Body Efimov Effect and Universal Pentamer in Fermionic Mixtures*
- S6.5.4**      V S Melezhik (Dubna, Russia; Moscow, Russia), A Negretti  
 15:30 – 16:00    (Hamburg, Germany)  
*Micromotion Effect on Atom-Ion Confinement-Induced Resonances*



**Wednesday, 19 July, 2017****S6.6 (11:15 – 12:30)****Chairs:** Sergey Nemirovskii (Russia) and Dmitry Petrov (France)

**S6.6.1** Y Wang, T Tran, P Surendran (Melbourne, Australia), I Herrera  
 11:15 – 11:45 (Melbourne, Australia; Auckland, New Zealand), A Balcytis  
 (Melbourne, Australia; Vilnius, Lithuania), D Nissen, M Albrecht  
 (Augsburg, Germany), A Sidorov, P Hannaford (Melbourne,  
 Australia)  
*Trapping Ultracold Atoms at 100 nm from a Chip Surface in a 0.7  
 Micron-Period Magnetic Lattice*

**S6.6.2** N Davidson (Rehovot, Israel)  
 11:45 – 12:05 *Anomalous Dynamics of Atoms in a 1D Dissipative Optical Lattice*

**S6.6.3** R Beinke, S Klaiman, L S Cederbaum, A I Streltsov (Heidelberg,  
 12:05 – 12:25 Germany), O E Alon (Haifa, Israel)  
*Many-Body Effects in the Excitation Spectrum of Weakly-Interacting  
 Bose-Einstein Condensates in One-Dimensional Optical Lattices*

**S6.7 (14:00 – 16:00)****Chairs:** Lorenz Srulek Cederbaum (Germany) and Peter Hannaford (Australia)

**S6.7.1** L S Cederbaum (Heidelberg, Germany)  
 14:00 – 14:30 *How Good is the Gross-Pitaevskii Wave Function of BECs in the  
 Infinite-Particle Limit?*

**S6.7.2** V A Yurovsky, B A Malomed (Tel-Aviv, Israel), R Hulet (Houston  
 14:30 – 15:00 TX, USA), M Olshanii (Boston MA, USA)  
*Dissociation of One-Dimensional Matter-Wave Breathers Due to  
 Quantum Many-Body Effects*

**S6.7.3** K Sacha (Kraków, Poland)  
 15:00 – 15:30 *Time Crystals*

**S6.7.4** H Landa (Saclay, France), D Ulmo (Orsay, France), V Fleurov (Tel-  
 15:30 – 16:00 Aviv, Israel)  
*1D and 2D Tunneling as a Flow. Topology and Dynamics of Vortices*

**S6.8 (16:30 – 18:30)****Chairs:** Vladimir Melezhik (Russia) and Krzysztof Sacha (Poland)

**S6.8.1** S Klaiman (Heidelberg, Germany), A I Streltsov (Heidelberg,  
 16:30 – 17:00 Germany; Kassel, Germany), O E Alon (Tivon, Israel)  
*Solvable Model of a Generic Trapped Mixture of Interacting Bosons:  
 Many-Body and Mean-Field Properties*

- S6.8.2**      T Bourdel, A Boissé, G Berthet, G Salomon, L Fouché, A Aspect,  
17:00 – 17:30    S Lepoutre (Palaiseau, France)  
*Non-Linear Scattering of Atomic Bright Solitons in Disorder*
- S6.8.3**      D Peçak, T Sowiński (Warsaw, Poland)  
17:30 – 17:50    *Transition in Traps of Different Shapes in a System of a Few Ultra-Cold Fermions*
- S6.8.4**      A K Fedorov (Moscow, Russia; Orsay, France)  
17:50 – 18:10    *Non-Conventional Superfluids of Lattice Fermions*
- S6.8.5**      I S Ishmukhamedov, V S Melezhik (Dubna, Russia)  
18:10 – 18:30    *Tunneling of Two Bosonic Atoms From a One-Dimensional Anharmonic Trap*

## Seminar 7: Quantum Information Science

### Co-Chairs

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

**Monday, 17 July, 2017**

**S7.1 (11:15 – 12:30)**

**Chair:** Marco Genovese (Italy)

- S7.1.1** J C Lee, K K Park, T M Zhao, Y-H Kim (Pohang, South Korea)  
11:15 – 11:40 *Einstein-Podolsky-Rosen Entanglement of Narrow-Band Photons from Cold Atoms* (invited talk)
- S7.1.2** J Raskop, N V Corzo, A Chandra, B Gouraud, A S Sheremet, J Laurat (Paris, France)  
11:40 – 12:00 *Heralding of a Single Collective Excitation in a 1D Atomic Array Close to a Nanofiber*
- S7.1.3** J Rehacek, M Paur, B Stoklasa, Z Hradil (Olomouc, Czech Republic),  
12:00 – 12:30 L L Sanchez-Soto (Erlangen, Germany; Madrid, Spain)  
*Achieving the Ultimate Quantum Resolution* (invited talk)

**S7.2 (14:00 – 16:00)**

**Chair:** Marco Barbieri (Italy)

- S7.2.1** A A Rakhubovsky, R Filip (Olomouc, Czech Republic)  
14:00 – 14:20 *Photon-Phonon-Photon Transfer in Optomechanics* (invited talk)
- S7.2.2** M V Chekhova (Erlangen, Germany; Moscow, Russia), S Germanskiy (Dresden, Germany; Moscow, Russia), D B Horoshko (Lille, France; Minsk, Belarus), M I Kolobov (Lille, France), G Kh Kitaeva (Moscow, Russia), G F Leuchs (Erlangen, Germany), Ch Phillips (Zürich, Switzerland)  
14:20 – 14:50 *Ultrabroadband Twin Beams and Their Up-Conversion* (invited talk)

**S7.2.3** 14:50 – 15:10 J Tiedau (Paderborn, Germany), V S Shchesnovich (Santo André, Brazil), D Mogilevtsev (Santo André, Brazil; Minsk, Belarus), N Korolkova (St. Andrews, UK), T Bartley, Ch Silberhorn (Paderborn, Germany)  
*Trading Quantum States for Temporal Profiles: Tomography by the Overlap* (invited talk)

**S7.2.4** 15:10 – 15:40 V Makarov (Waterloo, ON, Canada)  
*Toward Robust and Certifiably Secure Global Quantum Communications* (invited talk)

### **S7.3 (16:30 – 18:30)**

**Chair:** Luis Sanchez-Soto (Spain)

**S7.3.1** 16:30 – 17:00 M. Genovese (Turin, Italy)  
*Protecting the Quantum Measurement: From Conceptual to Practical Application* (invited talk)

**S7.3.2** 17:00 – 17:20 M Bradshaw, S Assad, P K Lam (Canberra, Australia)  
*Optimal Estimation of Joint Parameters with Gaussian Probes*

**S7.3.3** 17:20 – 17:40 Yu I Bogdanov, N A Bogdanova (Moscow, Russia)  
*Lorentz Transformations and Optical Polarization Quantum Measurements* (invited talk)

**S7.3.4** 17:40 – 18:00 I A Pogorelov, G I Struchalin, S S Straupe, I V Radchenko, K S Kravtsov, S P Kulik (Moscow, Russia)  
*Experimental Adaptive Process Tomography*

**S7.3.5** 18:00 – 18:20 E. Roccia, L Mancino, I Gianani, M Sbroscia, F Somma (Rome, Italy), M G Genoni (Milan, Italy), M Barbieri (Rome, Italy)  
*Entangling Measurements for Multiparameter Estimation with two Qubits* (invited talk)

**S7.3.6** 18:20 – 18:35 E Losero, I Ruo-Berchera, A Meda, A Avella, N Samantaray, F Scafirimuto, M Genovese (Turin, Italy)  
*Quantum Enhanced Absorption Measurement and Microscopy*

### **Tuesday, 18 July, 2017**

#### **S7.4 (11:15 – 12:30)**

**Chair:** Maria Chekhova (Germany)

**S7.4.1** 11:15 – 11:30 I A Burenkov (Gaithersburg MD, USA), O V Tikhonova (Moscow, Russia), S V Polyakov (Gaithersburg MD, USA)  
*Discrimination of Frequency Shifted Coherent States Below the Standard Quantum Limit* (invited talk)

- S7.4.2**      S M Arakelian, A O Kucherik, S V Kutrovskaia, A V Osipov, A V  
11:30 – 11:40    Istratov (Vladimir, Russia)  
*Topology-Induced Correlated Quantum States in Nanocluster/Thin  
Film Units: Manifestation in the Superconductivity Tendency*  
(invited talk)
- S7.4.3**      M V Fedorov, S V Vintskevich, D A Grigoriev (Moscow, Russia)  
11:40 – 12:05    *On Polarizations of Photons in Non-Collinear Spontaneous  
Parametric Down-Conversion* (invited talk)
- S7.4.4**      F Plastina (Cosenza, Italy)  
12:05 – 12:30    *Quantum Coherence and Quantum Correlations in a  
Thermodynamic Setting* (invited talk)

### S7.5 (14:00 – 16:00)

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

- S7.5.1**      V A Pivovarov (St.-Petersburg, Russia), A S Sheremet (Paris, France;  
14:00 – 14:20    Moscow, Russia), L V Gerasimov (St.-Petersburg, Russia), J Laurat  
(Paris, France), D V Kupriyanov (St.-Petersburg, Russia)  
*Light Scattering from an Atomic Array Trapped Near a Sub-  
Wavelength Dielectric Waveguide* (invited talk)
- S7.5.2**      D Barredo, S de Léséleuc, V Lienhard, T Lahaye, A Browaeys  
14:20 – 14:50    (Palaiseau, France)  
*Quantum Simulation of Many-Body Physics with 2D Arrays of Single  
Rydberg Atoms*
- S7.5.3**      A S Kuraptsev, I M Sokolov (St.-Petersburg, Russia)  
14:50 – 15:10    *Dipole-Dipole Interaction in a Dense Ensemble of Impurity Atoms  
in a Dielectric Near the Conductive Surface*
- S7.5.4**      S Varró (Budapest, Szeged, Hungary)  
15:10 – 15:40    *Regular Phase Coherent States Represented by S-Waves* (invited  
talk)
- S7.5.5**      D A Kronberg (Moscow, Russia)  
15:40 – 16:00    *Active Beam-Splitting Attack Applied to Differential Phase-Shift  
Protocol*

**Wednesday, 19 July, 2017****S7.6 (11:15 – 12:30)****Chair:** Alexey Kalachev (Russia)

- S7.6.1** 11:15 – 11:40 A V Sergienko (Boston MA, USA), D S Simon (Boston MA, USA; Boston, USA), C A Fitzpatrick, S Osawa (Boston MA, USA)  
*Quantum Simulation of Physical Systems with Directionally Unbiased Linear-Optical Multiports* (invited talk)
- S7.6.2** 11:40 – 12:05 V Ansari, M Allgaier, J M Donohue, C Eigner, R Rickon, V Quiring, L Sansoni, G Harder (Paderborn, Germany), B Brecht (Oxford, UK), C Silberhorn (Paderborn, Germany)  
*Ultrafast Mode-Selection, Purification and Manipulation of Quantum Light with Nonlinear Waveguide Devices*
- S7.6.3** 12:05 – 12:30 A Yu Chernyavskiy (Moscow, Russia)  
*The Usage of Global Optimization in Quantum Information Science*

**S7.7 (14:00 – 16:00)****Chair:** Alexander Sergienko (USA)

- S7.7.1** 14:00 – 14:20 S W Su, S C Gou (Changhua, Taiwan), L Y Chew (Singapore, Singapore), Y Y Chang (Gif Sur Yvette, France), I Yu (Hsinchu, Taiwan), A Kalachev (Kazan, Russia), W T Liao (Taoyuan, Taiwan)  
*Setting a Disordered Password on a Photonic Memory*
- S7.7.2** 14:20 – 14:40 M Akbari, A A Kalachev (Kazan, Russia)  
*Heralded Two-Photon Sources Based on Third-Order Spontaneous Parametric Down-Conversion in Microresonators* (invited talk)
- S7.7.3** 14:40 – 15:00 K Kato (Tokyo, Japan)  
*Physical Layer Security by Quantum Stream Cipher* (invited talk)
- S7.7.4** 15:00 – 15:25 M Jacquet, V Singh, F Koenig (St. Andrews, UK)  
*Mixing of Positive and Negative Frequency Waves at the Optical Horizon* (invited talk)

**S7.8 (16:30 – 18:30)**

- S7.8.1** 16:30 – 16:50 Y-S Kim, T Pramanik, Y-W Cho, S-W Han, S-Y Lee, S Moon (Seoul, South Korea)  
*Experimental Verification of Hidden Einstein-Podolsky-Rosen Steering*

- S7.8.2**      A A Zhukov, S V Remizov, D S Shapiro, W V Pogosov, Yu E Lozovik (Moscow, Russia)  
16:50 – 17:10      *Superconducting Qubit in a Nonstationary Transmission Line Cavity: Parametric Excitation, Periodic Pumping and Energy Dissipation*
- S7.8.3**      F Ablayev, M Ablayev (Kazan, Russia)  
17:10 – 17:25      *On Quantum Fingerprinting and Quantum Hashing* (invited talk)
- S7.8.4**      N Davidson (Rehovot, Israel)  
17:25 – 17:50      *Solving Hard Computational Problems with Coupled Lasers* (invited talk)
- S7.8.5**      E V Kovlakov, I B Bobrov, S S Straupe, S P Kulik (Moscow, Russia)  
17:50 – 18:10      *Postselection-Free Spatial Bell States Generation* (invited talk)
- S7.8.6**      V Karimipour, A Mani, S F Rezazadeh (Tehran, Iran)  
18:10 – 18:30      *Secure Alignment of Coordinate Systems*

### Thursday, 20 July, 2017

#### S7.9 (11:15 – 12:30)

**Chair:** Farid Ablayev (Russia)

- S7.9.1**      M Thornton, C Croal (St. Andrews, UK), I Khan, Ch Marquardt, G Leuchs (Erlangen, Germany), N Korolkova (St. Andrews, UK)  
11:15 – 11:45      *Gigahertz Quantum Signatures Compatible with Telecommunication Technologies* (invited talk)
- S7.9.2**      O V Tikhonova (Moscow, Russia), P R Sharapova (Paderborn, Germany; Moscow, Russia), M V Chekhova (Erlangen, Germany; Moscow, Russia), G Frascella, A M Perez (Erlangen, Germany), R V Zakharov (Moscow, Russia), G Leuchs (Erlangen, Germany)  
11:45 – 12:10      *Control and Manipulation of Spatial and Spectral Properties of Bright Squeezed Vacuum States of Light* (invited talk)
- S7.9.3**      K S Kravtsov, I V Radchenko, S P Kulik, S N Molotkov (Moscow, Russia)  
12:10 – 12:30      *Relativistic QKD System with One-Way Quantum Communication* (invited talk)

#### S7.10 (14:00 – 16:00)

- S7.10.1**      S V Remizov, D S Shapiro (Moscow, Russia), A N Rubtsov (Skolkovo, Moscow Region, Russia; Moscow, Russia)  
14:00 – 14:20      *Role of Qubit-Cavity Entanglement for Dynamics of Dissipative Hybrid Qubit-Cavity System*

- S7.10.2** 14:20 – 14:45 J Thompson, A Garner (Singapore, Singapore), J Mahoney, J Crutchfield (Davis, USA), V Vedral (Singapore, Singapore; Oxford, UK), M Gu (Singapore, Singapore)  
*Causal Irreversibility and Time's Barbed Arrow in a Quantum World*
- S7.10.3** 14:45 – 15:00 E V Moreva, P Traina, J Forneris, I P Degiovanni, S Ditalia Tchernij, F Piccolo, G Brida, P Olivero, M Genovese (Turin, Italy)  
*Experimental Observation of Nonclassicality in Ensembles of Single Photon Emitters* (invited talk)
- S7.10.4** 15:00 – 15:25 J Thompson, A J P Garner (Singapore, Singapore), V Vedral (Singapore, Singapore; Oxford, UK), M Gu (Singapore, Singapore)  
*Simplifying Input Output Processes with Quantum Mechanics* (invited talk)
- S7.10.5** 15:25 – 15:40 K G Katamadze, G V Avosopyants, Yu I Bogdanov, S P Kulik (Moscow, Russia)  
*Quantum Vampire Biting Thermal Light*
- S7.10.6** 15:40 – 16:00 R V Zakharov, O V Tikhonova (Moscow, Russia)  
*Spatial Properties of Bright Squeezed Vacuum in Near and Far Field Regions*



## Seminar 8: Fiber Optics

### Co-Chairs

|                          |  |
|--------------------------|--|
| <b>Sergey A. Babin</b>   | Institute of Automation and Electrometry,<br>Novosibirsk, Russia           |
| <b>Evgueni M. Dianov</b> | Fiber Optics Research Center, Moscow, Russia                               |
| <b>Oleg G Morozov</b>    | Kazan State Technical University named after A<br>N Tupolev, Kazan, Russia |

**Wednesday, 19 July, 2017**

**S8.1 (11:15 – 12:30)**

**Chair:** Oleg Morozov (Russia)

- S8.1.1** R Nigmatullin (Kazan, Russia)  
11:15 – 11:50 *How to Extract a Deterministic Information from any Trendless Noise? The Grounds of New Fluctuation Spectroscopy Based on the NAFASS Approach* (invited talk)
- S8.1.2** D Churkin (Novosibirsk, Russia)  
11:50 – 12:25 *Spectral Correlations in Random Fibre Lasers* (invited talk)

**S8.2 (14:00 – 16:00)**

**Chair:** Sergei Firstov (Russia)

- S8.2.1** O Pottiez, H E Ibarra-Villalon, Y Bracamontes-Rodriguez, J P Lauterio-Cruz (León, Mexico), J C Hernandez-Garcia (Salamanca, Mexico), M Bello-Jimenez (San Luis Potosí, Mexico), E A Kuzin (Puebla, Mexico)  
14:00 – 14:25 *Extreme Events and Noiselike Pulse to Soliton Conversion in a Passively Mode-Locked Fiber Laser*
- S8.2.2** L M Kovachev, D A Georgieva (Sofia, Bulgaria)  
14:25 – 14:50 *Femtosecond Limit of Soliton Propagation in Optical Fibers*
- S8.2.3** M Duran-Sanchez, R I Alvarez-Tamayo, B Posada-Ramirez, B Ibarra-Escamilla, E A Kuzin (Puebla, Mexico)  
14:50 – 15:05 *Passively Q-Switched Dual-Wavelength Operation of a Thulium-Doped Fiber Laser by Using a Holmium-Doped Fiber Saturable Absorber*
- S8.2.4** B Posada Ramirez, M Durán-Sánchez, R I Alvarez Tamayo, B Ibarra Escamilla, E A Kuzin (Puebla, Mexico)  
15:05 – 15:20 *Dual-Wavelength Thulium-Doped Fiber Laser Operating at 2  $\mu\text{m}$  Wavelength Range*

- S8.2.5** I A Lobach, R V Drobyshev, S I Kablukov, S A Babin (Novosibirsk, Russia)  
15:20 – 15:35  
*Fiber Laser with Externally Induced Dynamic Grating*
- S8.2.6** V Kamynin, A I Trikshev (Moscow, Russia; Ulyanovsk, Russia),  
15:35 – 15:50  
V B Tsvetkov (Moscow, Russia), I O Zolotovskii, D A Korobko (Ulyanovsk, Russia)  
*All-Fiber Passively Mode Locked Yb-Doped Laser with External Tunable Fiber Bragg Grating Based Filter*
- S8.2.7** S S Yakushin, A A Wolf, A V Dostovalov, M I Skvortsov, S A Babin  
15:50 – 16:00 (Novosibirsk, Russia)  
*A Study of Bending Effect on the Femtosecond-Pulse Inscribed Fiber Bragg Gratings in a Dual-Core Fiber*

### S8.3 (16:30 – 18:30)

**Chair:** Olivier Pottiez (Mexico)

- S8.3.1** V A Burdin, A V Bourdine (Samara, Russia)  
16:30 – 16:50  
*Dynamics of Nonlinear Excitation of the High-Order Mode in a Single-Mode Step-Index Optical Fiber* (invited talk)
- S8.3.2** S V Firstov (Moscow, Russia; Saransk, Russia), V F Khopin, F V Afanas'ev (Nizhny Novgorod, Russia), A M Khagai, S V Alyshev, K E Riumkin (Moscow, Russia), N N Vechkanov, A N Abramov (Nizhny Novgorod, Russia), M A Melkumov (Moscow, Russia), A N Guryanov (Nizhny Novgorod, Russia), E M Dianov (Moscow, Russia)  
16:50 – 17:10  
*Unsaturation Absorption in Various Bi-Doped Optical Fibers*
- S8.3.3** A V Reznichenko, I S Terekhov (Novosibirsk, Russia)  
17:10 – 17:30  
*Channel Capacity Calculation at Large SNR and Small Dispersion within Path-Integral Approach*
- S8.3.4** I L Vinogradova, A Kh Sultanov, I K Meshkov, G I Abdrakhmanova, A V Andrianova, E P Grakhova, L Z Yantilina (Ufa, Russia)  
17:30 – 18:00  
*Modeling Principles of Antenna Array Management Device for RoF Systems*
- S8.3.5** O G Morozov, I I Nureev, A A Kuznetsov, V I Artemiev (Kazan, Russia)  
18:00 – 18:15  
*Smart Photonic Carbon Brush: FBG Length as Sensing Parameter*
- S8.3.6** A G Kuznetsov, D S Kharenko (Novosibirsk, Russia), I B Tsydenzhapov, D A Kovalenko (Novosibirsk, Russia; Perm, Russia)  
18:15 – 18:30  
*Development and Investigation of A Long-Haul Distributed Temperature Sensor Based on Raman Scattering*

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

### Co-Chairs

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

**Monday, 17 July, 2017**

**S9.1 (16:30 – 18:30)**

**Chair:** Mickael Grech (France)

|                                |  |
|--------------------------------|--|
| <b>S9.1.1</b><br>16:30 – 17:00 | <u>S Ter-Avetisyan</u> (Gwangju, South Korea)<br><i>Ion Acceleration with Ultrashort PW Lasers</i> (invited talk)  |
| <b>S9.1.2</b><br>17:00 – 17:30 | <u>A A Gonoskov</u> (Gothenburg, Sweden; Nizhny Novgorod, Russia),<br>T G Blackburn (Gothenburg, Sweden), M Blanco, M T Flores-Arias (Santiago de Compostela, Spain), B S Wettervik, M Marklund (Gothenburg, Sweden)<br><i>Prospects of X-Ray Generation in the Non-Mirror Regime of Laser-Plasma Interaction</i> (invited talk) |
| <b>S9.1.3</b><br>17:30 – 17:50 | <u>F Mackenroth</u> (Dresden, Germany), A Gonoskov, M Marklund (Gothenburg, Sweden)<br><i>Controlling Laser-Ion Acceleration Through Pulse Chirping</i> (invited talk)   |
| <b>S9.1.4</b><br>17:50 – 18:10 | <u>E G Gelfer</u> , A M Fedotov, E Yu Echkina (Moscow, Russia), N V Elkina (Jena, Germany)<br><i>Plasma Waves Created by Radiation Reaction: a Way to Generate Stronger Longitudinal Fields</i> (invited talk)   |
| <b>S9.1.5</b><br>18:10 – 18:30 | <u>J Vyskocil</u> , O Klimo, S A Weber, G Korn (Prague, Czech Republic)<br><i>Emission of <math>\gamma</math> Rays in Interactions of Ultra-Short Laser Pulses with Solid Targets</i>  |

**Tuesday, 18 July, 2017****S9.2 (11:15 – 12:30)****Chair:** Sargis Ter-Avetisyan (South Korea)

**S9.2.1** 11:15 – 11:45 H Bernhardt, B Marx-Glowna, K S Schulze, B Grabiger, R Loetzsch, E Förster, T Stöhlker, I Uschmann, G G Paulus (Jena, Germany)  
*High-Precision Diamond Quasi Channel-Cut X-Ray Polarimeters for the Detection of Vacuum Birefringence* (invited talk)

**S9.2.2** 11:45 – 12:00 S Yu Mironov Dr. (Nizhny Novgorod, Russia), J Wheeler Dr. (Paris, France), V N Ginzburg Dr., I V Yakovlev Dr., A A Shaykin Dr., E A Khazanov Prof. (Nizhny Novgorod, Russia), G A Mourou Prof. (Paris, France), T Tajima Prof. (Irvine CA, USA)  
*Temporal Recompression and Contrast Enhancement of PW Laser Pulses* (invited talk)

**S9.2.3** 12:00 – 12:15 S A Frolov, V I Trunov, E V Pestryakov, S N Bagaev (Novosibirsk, Russia)  
*Coherent Combining of Femtosecond Pulses from Parametric Amplifiers with Multiple Pump Beams*

**S9.2.4** 12:15 – 12:30 A Savel'ev, I Tsymbalov, D Gorlova, I Mordvincev, S Shulyapov, K Ivanov, V Prokudin, V Nedorezov, A Rusakov, A Turinge (Moscow, Russia)  
*Low Energy Nuclear Physics with Terawatt Laser* (invited talk)

**S9.3 (14:00 – 16:00)****Chair:** Felix Mackenroth (Germany)

**S9.3.1** 14:00 – 14:25 F Karbstein (07743 Jena, Germany)  
*Revisiting the Heisenberg-Euler Effective Action* (invited talk)

**S9.3.2** 14:25 – 14:45 I A Aleksandrov (St.-Petersburg, Russia), G Plunien (Dresden, Germany), V M Shabaev (St.-Petersburg, Russia)  
*Momentum Distribution of Particles Produced in Space-Time-Dependent Colliding Laser Pulses*

**S9.3.3** 14:45 – 15:05 A Otto, B Kämpfer (Dresden, Germany)  
*The Photon Signature of the Dynamical Schwinger Effect*

**S9.3.4** 15:05 – 15:25 A Rajabi (Halle, Germany; Tehran, Iran), I A Gonoskov (Halle, Germany)  
*Relativistic Electron Quantum Dynamics in Focused Electromagnetic Fields* (invited talk)

**S9.3.5** 15:25 – 15:45 H Bauke, M Wen, C H Keitel (69117 Heidelberg, Germany)  
*Electrons in Strong Electromagnetic Fields: Spin Effects and Radiation Reaction* (invited talk)

**Wednesday, 19 July, 2017****S9.4 (11:15 – 12:30)****Chair:** Sergey Popruzhenko (Russia)

- S9.4.1**      A Rudenko (Manhattan KS, USA)  
11:15 – 11:45    *Atomic and Molecular Response to Ultraintense Femtosecond Hard X-Ray Pulses* (invited talk)
- S9.4.2**      M Klaiber, K Z Hatsagortsyan (Heidelberg, Germany), J Wu (Shanghai, China), S S Luo, P Grugan, B Walker (Newark DL, USA)  
11:45 – 12:05    *Limits of Strong Field Rescattering in the Relativistic Regime* (invited talk)
- S9.4.3**      H R Reiss (Berlin, Germany; Washington DC, USA)  
12:05 – 12:35    *Unique Gauge for Laser Effects*

**S9.5 (14:00 – 16:00)****Chair:** Alexander Fedotov (Russia)

- S9.5.1**      H Ruhl (München, Germany)  
14:00 – 14:30    *Radiation Reaction Revisited* (invited talk)
- S9.5.2**      M Grech (Palaiseau, France)  
14:30 – 15:00    *Quantum and Classical Modelling of Radiation Reaction and High-Energy Photon Emission: Focus on Stochasticity Effects* (invited talk)
- S9.5.3**      E N Nerush, A S Samsonov, I Yu Kostyukov (Nizhny Novgorod, Russia)  
15:00 – 15:20    *Asymptotic Electron Motion in the Radiation-Dominated Regime*
- S9.5.4**      T Liseykina (Rostock, Germany), S V Popruzhenko (Dresden, Germany), A Macchi (Pisa, Italy)  
15:20 – 15:45    *Radiation-Dominated Plasma Dynamics in the Interaction of Super-Intense Circularly Polarized Pulses with Thick Targets* (invited talk)
- S9.5.5**      A A Muraviev, A M Sergeev (Nizhny Novgorod, Russia)  
15:45 – 16:05    *Charged Particle Dynamics in Quasistatic Field Structures Formed in an Electron-Positron Plasma Created by Colliding Ultraintense Electromagnetic Waves*

**S9.6 (16:30 – 18:30)****Chair:** Evgeny Nerush (Russia)

- S9.6.1**      M Vranic (Lisbon, Portugal)  
16:30 – 16:55    *Relativistic Electron-Positron Jets from Intense Laser-Electron Interaction* (invited talk)
- S9.6.2**      E S Efimenko, A V Bashinov, A A Gonoskov, A A Muraviev,  
16:55 – 17:10    A V Kim, A M Sergeev (Nizhny Novgorod, Russia)  
*Pinch Regime in QED-Plasma Creation by Laser Fields of Extreme Intensity* (invited talk)
- S9.6.3**      M Tamburini, A Di Piazza, C H Keitel (Heidelberg, Germany)  
17:10 – 17:30    *Laser-Pulse-Shape Control of Seeded QED Cascades* (invited talk)
- S9.6.4**      E Raicher (Jerusalem, Israel; Yavne, Israel), S Eliezer (Yavne, Israel;  
17:30 – 17:50    Madrid, Spain), A Zigler (Jerusalem, Israel)  
*Non linear Compton in a Rotating Electric Field* (invited talk)
- S9.6.5**      A M Fedotov, A A Mironov, E G Gelfer (Moscow, Russia)  
17:50 – 18:10    *Self-Sustained QED Cascades in Generic Electromagnetic Fields*  
(invited talk)
- S9.6.6**      A V Bashinov, E S Efimenko, A V Kim (Nizhny Novgorod, Russia)  
18:10 – 18:30    *Current Instability of Electron-Positron Plasma in Relativistically Intense Laser Field* (invited talk)

## Seminar 2&9: Joined Session of Seminar 2 and Seminar 9

### 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>Antonino Di Piazza</b> | Max Planck Institute for Nuclear Physics, Heidelberg, Germany                         |
| <b>Mikhail V. Fedorov</b> | A.M. Prokhorov General Physics Institute, Moscow, Russia                              |
| <b>Alexander Fedotov</b>  | National Research Nuclear University MEPhI, Moscow, Russia                            |
| <b>Christoph Keitel</b>   | Max Planck Institute for Nuclear Physics, Heidelberg, Germany                         |

**Thursday, 20 July, 2017**

**S2&9.1 (14:00 – 16:00)**

**Chair:** Wilhelm Becker (Germany)

|                                      |  |
|--------------------------------------|--|
| <b>S2&amp;9.1.1</b><br>14:00 – 14:35 | <u>C H Keitel</u> (Heidelberg, Germany)<br><i>Relativistic Quantum Dynamics and Quantum Electrodynamics with Super Strong Laser Pulses</i> (invited talk)  |
| <b>S2&amp;9.1.2</b><br>14:35 – 15:10 | <u>V Yu Bychenkov</u> (Moscow, Russia)<br><i>Novel Trends in Laser-Based Particle Accelerators and Electromagnetic Sources</i> (invited talk)  |
| <b>S2&amp;9.1.3</b><br>15:10 – 15:30 | <u>S Ahrens</u> (Beijing, China)<br><i>Spin-Dependent Diffraction in the Kapitza-Dirac Effect</i>  |
| <b>S2&amp;9.1.4</b><br>15:30 – 16:00 | <u>E S Efimenko</u> , <u>A V Bashinov</u> (Nizhny Novgorod, Russia), <u>A A Gonoskov</u> (Gothenburg, Sweden; Nizhny Novgorod, Russia), <u>A A Muraviev</u> , <u>A V Kim</u> , <u>A M Sergeev</u> (Nizhny Novgorod, Russia)<br><i>Extreme States of Electron-Positron-Pair Plasma Produced by Ultrarelativistic Laser Fields</i> |

## Closing Remarks

**Thursday, 20 July, 2017**

**CR.1 (18:30 – 18:45)**

|                                |   |
|--------------------------------|---|
| <b>CR.1.1</b><br>18:30 – 18:45 | <u>S Kulik</u> (Moscow, Russia)<br><i>Closing Remarks</i> |
|--------------------------------|---|

## Poster Session

### Seminar 1: Modern Trends in Laser Physics

- P.S1.1 R Svejkar, J Šulc, M Němec, H Jelínková, V Kubeček (Prague, Czech Republic), W Ma, D Jiang, Q Wu, L Su (Shanghai, China)  
*Diode-Pumped Er:CaF<sub>2</sub> Crystal 2.7 μm Tunable Laser*
- P.S1.2 M Němec (Prague, Czech Republic), M E Doroshenko (Moscow, Russia), H Jelínková, R Svejkar, J Šulc (Prague, Czech Republic), V K Komar, A S Gerasimenko (Kharkov, Ukraine)  
*Wavelength Tunability of Diode-Pumped Cr-Doped ZnMnSe Laser*
- P.S1.3 E A Sagitova, K A Prokhorov, G Yu Nikolaeva, F A Nasonov, Yu V Zavgorodnev, P P Pashinin (Moscow, Russia)  
*Raman Characterization of Epoxy Resins, Subjected to Ultrasonic Treatment*
- P.S1.4 E A Sagitova, K A Prokhorov, G Yu Nikolaeva, A V Baimova, P P Pashinin, A Yu Yarysheva, D I Mendeleev (Moscow, Russia)  
*Raman Analysis of Polyethylene Glycols and Polyethylene Oxides*
- P.S1.5 L E Semenova (Moscow, Russia)  
*Theoretical Treatment of the Processes Involving the Dipole Transitions to the Lowest Exciton States in Hexagonal Semiconductors*
- P.S1.6 I I Popov, N S Vashurin (Yoshkar-Ola, Russia), S E Putilin (St.-Petersburg, Russia), V O Kompanets (Moscow, Russia), A U Bahodurov (Yoshkar-Ola, Russia)  
*Spectroscopic Possibilities and Informative Properties of Femtosecond Magneto-optics Based on Photon Echo*
- P.S1.7 N V Larionov, I M Sokolov (St.-Petersburg, Russia)  
*Coherent Backscattering of Light in an Atomic Ensemble in the Presence of Electrostatic and/or Magnetostatic Fields*

### Seminar 2: Strong Field & Attosecond Physics

- P.S2.1 M V Frolov, A A Minina, N L Manakov (Voronezh, Russia), A A Silaev, N V Vvedenskii (Nizhny Novgorod, Russia), A F Starace (Lincoln NE, USA)  
*Theory of High Harmonic Generation in the Adiabatic Limit*
- P.S2.2 M Ambrosio, U Thumm (Manhattan KS, USA)  
*Attosecond Time-Resolved Photoemission from Cu(100) and Cu(111) Surfaces*



- P.S2.3 F Cajiao Vélez, J Z Kamiński, K Krajewska (Warsaw, Poland)  
*The Spiral of Life*
- P.S2.4 H B Sang, Y J Hou, W Cheng, B S Xie (Beijing, China)  
*Positron Acceleration in Plasma Bubble Wakefield Driven by an Ultraintense Laser*
- P.S2.5 M V Frolov (Voronezh, Russia; Nizhny Novgorod, Russia), A A Minina, N L Manakov (Voronezh, Russia), A A Silaev, N V Vvedenskii (Nizhny Novgorod, Russia), A F Starace (Lincoln NE, USA)  
*Polarization Control of High Harmonic Generation in a Pulsed Bircircular Laser Field*
- P.S2.6 S N Balybin, O V Tikhonova (Moscow, Russia)  
*Atomic Ionization in Bright Non-Classical Light*
- P.S2.7 D A Tumakov, D A Telnov, I A Maltsev, V M Shabaev (St.-Petersburg, Russia)  
*Solution of the Time-Dependent Dirac-Kohn-Sham Equations for Many-Electron Ion Exposed to a Strong Laser Field*
- P.S2.8 N Camus, S Botsi, L Fechner, J Crespo López-Urrutia, T Pfeifer, R Moshhammer (Heidelberg, Germany)  
*Isotopic Shifts of Atomic States Measured Through Strong Field Interaction*
- P.S2.9 N Camus, T Shaaran (Heidelberg, Germany), J Dura (Barcelona, Spain), L Fechner (Heidelberg, Germany), A Thai, A Britz, M Baudisch (Barcelona, Spain), A Senftleben (Kassel, Germany), C D Schröter (Heidelberg, Germany), J Ullrich (Braunschweig, Germany; Heidelberg, Germany), T Pfeifer, K Z Hatsagortsyan (Heidelberg, Germany), J Biegert (Barcelona, Spain), C H Keitel, R Moshhammer (Heidelberg, Germany)  
*Non-Sequential Double Ionization of Atoms, From Low to High Ponderomotive Energy*
- P.S2.10 D Cricchio, E Fiordilino, P P Corso (Palermo, Italy)  
*One Byte Logic Gate Implementation with a Quantum Ring*
- P.S2.11 P P Corso, D Cricchio, R Daniele, U De Giovannini, B Frusteri, F Morales, E Fiordilino (Palermo, Italy)  
*Harmonic Generation from Molecules: Classical Chaos and Quantal Spectra*
- P.S2.12 A I Magunov, V V Strelkov (Moscow, Russia)  
*Atomic Emission Spectra Below Ionization Threshold in Intense Laser Field*

### Seminar 3: Laser Biomedical Applications

- P.S3.1 S V Kireev, S L Shnyrev (Moscow, Russia)  
*Detecting of  $^{14}\text{C}$ ,  $^{13}\text{C}$  and  $^{12}\text{C}$  in Gases in Real Time*
- P.S3.2 S V Kireev, S L Shnyrev (Moscow, Russia)  
*Using of Cooper Vapor Laser (510.6 nm) for Molecular Iodine Detecting in the Atmosphere*
- P.S3.3 D B Kulchitskaya, T V Konchugova, N E Fedorova (Moscow, Russia)  
*Laser Therapy in Medical Treatment of Patients with Osteoarthritis*
- P.S3.4 A S Shchekin, V N Petrovskiy, D P Bykovskiy, K L Sergeev, E D Ishkinyaev, A O Andreev, A A Ivanov (Moscow, Russia)  
*Precision Laser Milling of  $\text{Al}_2\text{O}_3$  Ceramics for the Creation of MEMS Structures*
- P.S3.5 K L Sergeev, V N Petrovskiy, D P Bykovskiy, E D Ishkinyaev, A S Shchekin, A O Andreev, A V Osintsev (Moscow, Russia)  
*Influence of Technological Regimes on the Properties of Materials Created by Direct Laser Deposition*
- P.S3.6 J Urzova (Kladno, Czech Republic), M Jelinek (Prague, Czech Republic; Kladno, Czech Republic)  
*Heat Transfer Modelling for Pulse Laser-Tissue Interaction*
- P.S3.7 A V Ivanov, G L Danielyan, I P Shilov, L Yu Kochmarev, K S Shchamkhalov, A S Ryabov (Moscow, Russia)  
*The Laser-Fiberoptic Device for the Nir-Luminescence Cancer Diagnosis on the Base of Ytterbium Porphyrin Complexes*
- P.S3.8 A V Ivanov, A A Korneeva, M N Sekerskaya (Moscow, Russia), E S Klenchichsheva (Voronezh, Russia), K I Zhordania (Moscow, Russia), A N Red'kin (Voronezh, Russia), V S Sapezhinskiy, N V Golubtsova, A E Barmashov, S A Gonchukov (Moscow, Russia)  
*The Possibilities of Dynamic Light Scattering Spectroscopy in the Detection of Malignant Processes*
- P.S3.9 S B Korovin, V I Pustovoy (Moscow, Russia)  
*Dependence of the Charge State of the Silicon Nanoparticle Surface on Passivation*

### Seminar 4: Physics of Lasers

- P.S4.1 N N Il'ichev, G A Bufetova, E S Gulyamova, P P Pashinin, A V Sidorin, V I Polyanskii (Moscow, Russia)  
*Nonlinear Transmission of a ZnSe:Fe<sup>2+</sup> Single Crystal Doped with a Diffusion Method at Wavelength 2940 nm at Low and Room Temperature*
- P.S4.2 A A Ionin, I V Kholin, A Yu L'dov, L V Seleznev, N N Ustinovskii, D A Zayarnyi (Moscow, Russia)  
*Quasi-CW High-Power Laser on 4p-4s Transition of ArI with Electron-Optical Pumping*
- P.S4.3 N V Larionov, E N Popov (St.-Petersburg, Russia)  
*Single-Emitter Laser with External Synchronization*
- P.S4.4 M V Fedorov, S V Vintskevich, D A Grigoriev (Moscow, Russia)  
*Diffraction as a Reason for Slowing Down Light Pulses in Vacuum*

### Seminar 5: Nonlinear Optics & Spectroscopy

- P.S5.1 L E Semenova (Moscow, Russia)  
*Theoretical Investigation of the Hyper-Raman Scattering in Hexagonal Semiconductors Under Two-Photon Excitation Near Resonance with the  $A_{n=2}$  Exciton Level*
- P.S5.2 K R Karimullin (Troitsk, Russia; Moscow, Russia), A I Arzhanov (Moscow, Russia), A V Naumov (Troitsk, Russia; Moscow, Russia)  
*Incoherent Photon Echo from Inhomogeneous Ensemble of Semiconductor Colloidal Quantum Dots*
- P.S5.3 K R Karimullin, A V Naumov (Troitsk, Russia; Moscow, Russia)  
*Combined Photon Echo and Single-Molecule Studies of Low-Temperature Dynamics in a Dye-Doped Polymer*
- P.S5.4 A Rogov, V V VorobeV, Y N Osin, V I Nuzhdin, V F Valeev, A L Stepanov (Kazan, Russia)  
*New-Type SERS-Active Substrates Formed with Ag Ion Implantation of Si*
- P.S5.5 A V Shutov, A O Levchenko, D V Mokrousova, N N Ustinovskii, V D Zvorykin (Moscow, Russia)  
*Role of Water in Air Ionization at KrF Laser Wavelength*
- P.S5.6 K A Barantsev, A N Litvinov, E N Popov (St.-Petersburg, Russia)  
*Filtration of an Incoherent Component of Radiation in an Optically Dense Gas Under CPT Conditions*

- P.S5.7 A V Shutov, A O Levchenko, D V Mokrousova, E S Sunchugasheva, N N Ustinovskii, V D Zvorykin (Moscow, Russia)  
*Lasing in Ambient Air Pumped by Femtosecond UV Filament*
- P.S5.8 E N Popov, S P Voskoboinikov, S M Ustinov, K A Barantsev, A N Litvinov (St.-Petersburg, Russia)  
*Interesting Spin Dynamics in the Scheme of Longitudinal Magnetical Resonance in Alkali Pumped with a Biharmonic Laser*
- P.S5.9 K S Khorkov, R V Chkalov, D A Kochuev, M A Tarasova, S M Arakelian, V G Prokoshev (Vladimir, Russia)  
*Investigation of the Dynamics of Multiple Filamentation in Transparent Solid Media*
- P.S5.10 D Badikov (Moscow, Russia; Krasnodar, Russia), V Badikov (Krasnodar, Russia), A Ionin, I Kinyaevskiy, Yu Klimachev, A Kotkov, D Mokrousova, V Mojaeva (Moscow, Russia)  
*Conversion of Sum Frequencies in GaSe and BaGa<sub>2</sub>GeSe<sub>6</sub> Nonlinear Crystals of Multi-Line Q-Switched CO Laser Radiation*
- P.S5.11 A A Shavelev, A S Nizamutdinov, V V Semashko, M A Marisov, A A Shakirov (Kazan, Russia)  
*Growth and Investigation of the Spectral-Kinetic and Amplifying Characteristics of the Perspective Active Medium of the UV range LiSr<sub>0.8</sub>Ca<sub>0.2</sub>AlF<sub>6</sub>·Ce<sup>3+</sup>*
- P.S5.12 P A Chizhov, A A Ushakov, D E Shipilo, V A Andreeva, N A Panov, D D Lapchik, V V Bukin, O G Kosareva, S V Garnov, A B Savel'ev (Moscow, Russia)  
*The Study of Focal Length Influence on Two-Color Plasma THz Source Far-Field Angular Distribution*

### Seminar 6: Physics of Cold Trapped Atoms

- P.S6.1 R Beinke, S Klaiman, L S Cederbaum, A I Streltsov (Heidelberg, Germany), O E Alon (Haifa, Israel)  
*Many-Body Tunneling Dynamics of Bose-Einstein Condensates and Vortex States in Two Spatial Dimensions*
- P.S6.2 A V Taichenachev (Novosibirsk, Russia)  
*Laser Cooling of Mg in an Optical Lattice*

**Seminar 7: Quantum Information Science**

- P.S7.1 V V Samartsev, T G Mitrofanova (Kazan, Russia)  
*Correlated Signals of Free Induction Decay in CdSe/CdS Nanostructures Under Two- and Three-Photon Excitation by Crossed Femtosecond Laser Beams* (invited talk)
- P.S7.2 A A Kalinkin, I V Dyakonov, M Yu Saygin, S P Kulik (Moscow, Russia), K I Gerasimov, R V Urmancheev, S A Moiseev (Kazan, Russia)  
*Femtosecond-Laser Micromachined Optical Waveguides in Nonlinear Crystals*
- P.S7.3 Y-S Kim, Y Choi (Seoul, South Korea), H-T Lim, K Hong (Pohang, South Korea), J Yune, O Kwon, S-W Han, K Oh (Seoul, South Korea), Y-H Kim (Pohang, South Korea), S Moon (Seoul, South Korea)  
*Non-Zero Discord Bipartite State Generation via Classical Second-Order Interference*
- P.S7.4 Yu I Bogdanov, B I Bantysh, N A Bogdanova, V F Lukichev (Moscow, Russia)  
*The Analysis of Impact of Photon Detectors Non-Unit Quantum Efficiency on the Triphoton Polarizing States Measurement Fidelity*
- P.S7.5 Yu I Bogdanov, D V Fastovets, N A Bogdanova, V F Lukichev (Moscow, Russia)  
*Application of the Schmidt Formalism to the Analysis of Multidimensional Schrödinger Cat States*
- P.S7.6 I Z Latypov, A A Talipov, A G Shmelev, I N Chuprina (Kazan, Russia)  
*Generation of Pure Single-Photon States in Commercial Photonic-Crystal Fibers on Telecommunication Frequencies*
- P.S7.7 D V Popolitova, O V Tikhonova (Moscow, Russia)  
*Interaction of an Atom with Two Resonant Few-Photon Coherent Electromagnetic Fields*
- P.S7.8 I N Chuprina (Kazan, Russia), P P An, E V Zubkova, V V Kovalyuk (Moscow, Russia), A A Kalachev (Kazan, Russia), G N Goltsman (Moscow, Russia)  
*Optimizing Spontaneous Four-Wave Mixing in a Ring Microresonator*

### Seminar 8: Fiber Optics

- P.S8.1 I S Terekhov, A V Reznichenko, A A Panarin (Novosibirsk, Russia)  
*Next-to-Leading Order Corrections to Capacity for Nondispersive Nonlinear Optical Fiber Channel in Intermediate Power Region*
- P.S8.2 R A Khabibullin (Moscow, Russia), O G Morozov, A A Kuznetsov (Kazan, Russia)  
*Methods of Spectrally Pure Two-Frequency Radiation Formation for Generation of Terahertz Carriers in Optical Range*
- P.S8.3 A S Abramov, I O Zolotovskii, D I Sementsov (Ulyanovsk, Russia)  
*Terahertz Amplification and Generation of a Surface Electromagnetic Waves in a Waveguide Structure*
- P.S8.4 I O Zolotovskii, V A Lapin, D I Sementsov (Ulyanovsk, Russia)  
*Modulation Instability of Wave Packets Propagating in Inhomogeneous Nonlinear Fiber*

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

- P.S9.1 A S Kuratov, A V Brantov, Yu M Aliev, V Yu Bychenkov (Moscow, Russia)  
*High Power Terahertz Pulse Generation by Relativistic Laser Plasma*
- P.S9.2 M G Lobok, A V Brantov, D A Gozhev, V Yu Bychenkov (Moscow, Russia)  
*Three-Dimensional Modeling of Laser-Triggered X-Ray and Gamma-Rays Sourced for Deep Radiography and Nuclear Applications*
- P.S9.3 K S Khorkov, R V Chkalov, D A Kochuev, A S Chernikov, V G Prokoshev (Vladimir, Russia)  
*Femtosecond Laser Nanostructuring of Tungsten and Molybdenum*



