

LPHYS'26

34th Annual International Laser Physics Conference

6-10 July 2026

Belén, Costa Rica

PROGRAMME



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Dear Participant,

Welcome to the **34th International Laser Physics Conference (LPHYS'26)**.

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For the latest programme, announcements, abstracts, and practical information, please visit the official conference website:



www.lasphys.com/sh/lphys26

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General Information

About LPHYS

A major milestone in the development of laser science came in 1964, when the Nobel Prize in Physics was awarded to Charles H. Townes, Nikolay G. Basov, and Alexander M. Prokhorov for their fundamental contributions to quantum electronics and the development of the maser-laser principle. Their work paved the way for technologies that have since transformed science, medicine, communications, industry, and many other areas of modern life.

In 1992, with the endorsement and active support of Nobel Laureate Alexander M. Prokhorov, the *International Laser Physics Conference* (LPHYS) was established to unite researchers from around the world and promote scientific collaboration in the rapidly developing field of laser science. Professor Prokhorov served as the founding Chairman of the Conference until his passing in 2002.

From its very beginning, LPHYS attracted leading researchers from many countries and established itself as an international forum for scientific exchange.

Over more than three decades, LPHYS has evolved into a respected international conference series hosted across Europe, Asia, and the Americas. Its distinctive structure, featuring parallel topical seminars led by internationally recognised experts, provides a forum for presenting new results, discussing emerging research directions, and fostering interdisciplinary collaboration.

Since then, LPHYS has continued to evolve under successive international organising committees while preserving its original mission.

Following a temporary transition to online formats during the global pandemic, the conference successfully returned to its traditional in-person format in 2024. Today, LPHYS continues to bring together researchers from around the world, supporting scientific exchange and the development of future advances in laser physics, photonics, and quantum science.

LPHYS'26

The 34th International Laser Physics Conference is being held in Belén, Costa Rica, on 6-10 July 2026.

The conference is hosted at *Costa Rica Marriott Hotel Hacienda Belén* and is expected to bring together several hundred participants from around the world.

LPHYS'26 continues the long-standing tradition of providing an international forum for the presentation and discussion of advances in laser physics, quantum science, photonics, nonlinear optics, strong-field physics, optical technologies, and related disciplines. The programme includes plenary lectures, invited presentations, contributed talks, and specialised topical seminars led by internationally recognised experts.

We warmly welcome all participants and hope that the conference will foster fruitful scientific discussions, new collaborations, and lasting professional connections.

Organisers



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Chairperson

Carlos Araya Leandro University of Costa Rica (UCR), San José, Costa Rica

Carlos Araya Leandro is Rector of the University of Costa Rica (UCR), the country's leading public university, serving for the 2025–2028 term. A Full Professor at UCR, he began his academic career at the Atlantic Regional Campus in 1996, where he later held several leadership positions, including Director of the campus.

Dr Araya holds a Bachelor's and a Master's degree in Business Administration from the University of Costa Rica, and a Doctorate in Economics, Management and Public Policy from the University of Granada, Spain. He served as Vice-Rector for Administration from 2012 to 2020 and acted as Transitional Rector of UCR during the COVID-19 pandemic.

Program Committee

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Shi-Yao Zhu	Zhejiang University, Hangzhou, China

Local Organizing Committee

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Federico Muñoz Rojas	University of Costa Rica (UCR), San José, Costa Rica
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- Oleg A. Evseev** Astro Science Ltd., Canada
- Kseniia A. Reidik** Astro Science Ltd., Canada
- Lazar Papernick** Boston, MA, USA

Conference Venue

All conference halls are located at **Marriott Hacienda Belén**.

Code	Name	Hall(s)
OR	Opening Remarks	Hall D+E
Pl	Plenary Session	Hall D+E
S1	Seminar 1	Hall D
S2	Seminar 2	Hall G+H
S4	Seminar 4	Hall F
S5	Seminar 5	Hall B+C
S6	Seminar 6	Hall F
S7	Seminar 7	Hall E
S8	Seminar 8	Hall A
S9	Seminar 9	Hall F
S10	Seminar 10	Hall A
S11	Seminar 11	Hall A
S12	Seminar 12	Hall B+C
QB	Quantum Biophotonics	Hall A

You may find the venue map on the inside back cover of this programme.

Conference Schedule

Monday, 6 July 2026

Time	Marriott Hacienda Belén					
	Hall D	Hall G+H	Hall A	Hall F	Hall B+C	Hall E
09:00 09:40	Opening Remarks (Hall D+E)					
09:40 10:20	Plenary Session (Hall D+E)					
10:20 10:50	Coffee Break					
10:50 11:30	Plenary Session (Hall D+E)					
11:30 13:30	Lunch Break *					
13:30 15:30	S1.1	S2.1	S10.1	S4.1	S12.1	S7.1
15:30 16:00	Coffee Break					
16:00 18:00	S1.2 <i>until 19:00</i>	S2.2	S10.2 <i>until 19:00</i>	S4.2	S12.2	S7.2
19:00 21:00	Welcome Party **					

* Lunch is **not** provided by the organisers.

** The Welcome Party will take place at the **Porte Cochère** of the Marriott Hacienda Belén.

Tuesday, 7 July 2026

Time	Marriott Hacienda Belén					
	Hall D	Hall G+H	Hall A	Hall F	Hall B+C	Hall E
09:00 09:40	Plenary Session (Hall D+E)					
09:40 10:20	Plenary Session (Hall D+E)					
10:20 10:50	Coffee Break					
10:50 11:30	Plenary Session (Hall D+E)					
11:30 13:30	Lunch Break *					
13:30 15:30	S1.3		S11.1	S9.1	S12.3	S7.3
15:30 16:00	Coffee Break					
16:00 17:30	S1.4		S11.2	S9.2		S7.4
18:00 20:00	Poster Session **					

* Lunch is **not** provided by the organisers.

** The Poster Session will take place at the **Porte Cochère** of the Marriott Hacienda Belén.

Wednesday, 8 July 2026

Time	Marriott Hacienda Belén					
	Hall D	Hall G+H	Hall A	Hall F	Hall B+C	Hall E
09:00 09:40	Plenary Session (Hall D+E)					
09:40 10:20	Plenary Session (Hall D+E)					
10:20 10:50	Coffee Break					
10:50 11:30	Plenary Session (Hall D+E)					
11:30 13:30	Lunch Break *					
13:30 15:30	S1.5	S2.3		S9.3	S12.4	S7.5
15:30 16:00	Coffee Break					
16:00 18:00	S1.6 <i>until 19:00</i>	S2.4	S8.1	S9.4		S7.6
21:00 23:00	Conference Dinner **					

* Lunch is **not** provided by the organisers.

** The Conference Dinner will take place at the **Hall D+E** of the Marriott Hacienda Belén.

Thursday, 9 July 2026

Time	Marriott Hacienda Belén					
	Hall D	Hall G+H	Hall A	Hall F	Hall B+C	Hall E
09:00 09:40	Plenary Session (Hall D+E)					
09:40 10:20	Plenary Session (Hall D+E)					
10:20 10:50	Coffee Break					
10:50 11:30	Plenary Session (Hall D+E)					
11:30 13:30	Lunch Break *					
13:30 15:30	S1.7	S2.5	QB	S6.1	S5.1	S7.7
15:30 16:00	Coffee Break					
16:00 18:00	S1.8 <i>until 19:00</i>	S2.6	QB	S6.2	S5.2	S7.8

* Lunch is **not** provided by the organisers.

Friday, 10 July 2026

Time	Marriott Hacienda Belén					
	Hall D	Hall G+H	Hall A	Hall F	Hall B+C	Hall E
09:00 09:40	Plenary Session (Hall D+E)					
09:40 10:20	Plenary Session (Hall D+E)					
10:20 10:50	Coffee Break					
10:50 11:30	Plenary Session (Hall D+E)					
11:30 13:30	Lunch Break *					
13:30 15:30	S1.9			S6.3		S7.9
15:30 16:00	Coffee Break					
16:00 18:00						S7.10

* Lunch is **not** provided by the organisers.

Scientific Programme

OR – Opening Remarks

Monday, 6 July 2026

OR.1 (09:00-09:40)

- OR.1.1** O A Kocharovskaya (College Station TX, USA)
09:00–09:10 *Opening Remarks*
- OR.1.2** C A Leandro (San José, Costa Rica)
09:10–09:40 *Opening Remarks*

Pl — Plenary Session**Monday, 6 July 2026****Pl.1 (09:40-10:20)****Chair: Olga Kocharovskaya**

Pl.1.1 L Davidovich (Rio de Janeiro, Brazil; College Station
09:40-10:20 TX, USA)
Quantum Metrology for Open Systems

Pl.2 (10:50-11:30)**Chair: Olga Kocharovskaya**

Pl.2.1 R W Boyd (Rochester NY, USA; Ottawa, Canada)
10:50-11:30 *Metasurfaces and Metamaterials for Nonlinear Pho-
tonics*

Tuesday, 7 July 2026**Pl.3 (09:00-09:40)**

Pl.3.1 L F DiMauro (Columbus OH, USA)
09:00-09:40 *What Can We Learn from Attosecond Pulses?*

Pl.4 (09:40-10:20)**Chair: Jean Pierre von der Weid**

Pl.4.1 N Davidson (Rehovot, Israel)
09:40-10:20 *Complex Bands and Topology with Coupled Lasers*

Pl.5 (10:50-11:30)**Chair: Joachim von Zanthier**

Pl.5.1 F Schmidt-Kaler (Mainz, Germany)
10:50-11:30 *Spin-Selective Coherent Light Scattering from Ion
Crystals and Towards Scalable Quantum Computing*

Wednesday, 8 July 2026**Pl.6 (09:00-09:40)****Chair: Pavel Polynkin**

Pl.6.1 L Bergé (Talence, France)
09:00-09:40 *Generation of Terahertz Pulses by Laser-Plasma Interactions: From Microjoule to Joule-Class Energy*

Pl.7 (09:40-10:20)**Chair: Alexander Lvovsky**

Pl.7.1 P McMahan (Ithaca NY, USA)
09:40-10:20 *Optical Computing: Principles, Examples, and Prospects*

Pl.8 (10:50-11:30)**Chair: Andrei Derevianko**

Pl.8.1 R Elwell (Los Angeles CA, USA)
10:50-11:30 *Laser Spectroscopy of a Nucleus - ^{229m}Th Nuclear Clock Transition*

Thursday, 9 July 2026**Pl.9 (09:00-09:40)****Chair: Ebrahim Karimi**

Pl.9.1 I Kaminer (Haifa, Israel)
09:00-09:40 *Where Does Quantum Optics Go Next?*

Pl.10 (09:40-10:20)**Chair: Marco Genovese**

Pl.10.1 J K Thompson (Boulder CO, USA)
09:40-10:20 *Quantum Simulation and Sensing with Photon-Mediated Interactions*

Pl.11 (10:50-11:30)**Chair: Zenghu Chang**

- Pl.11.1** H Cao (New Haven CT, USA)
10:50-11:30 *High-power Single-Frequency Multimode Fiber Laser Amplifiers*

Friday, 10 July 2026**Pl.12 (09:00-09:40)****Chair: Jan Michael Rost**

- Pl.12.1** T Brabec (Ottawa, ON, Canada)
09:00-09:40 *Quantum Engineering of Strong Field Physics*

Pl.13 (09:40-10:20)**Chair: Xiaofei Shen**

- Pl.13.1** B F Shen (Shanghai, China)
09:40-10:20 *Positron Acceleration with Transition Radiation Driven by Ultra Intense Laser at SULF and SEL*

Pl.14 (10:50-11:30)**Chair: János Bergou**

- Pl.14.1** L Kendrick (Cambridge MA, USA)
10:50-11:30 *Quantum Simulation of the Unknown: Observation of Pseudogap Physics and Stripes in the Fermi-Hubbard Model*

S1 – Modern Trends in Laser Physics

Seminar Co-Chairs

Olga Kocharovskaya	Texas A&M University, College Station, TX, USA
Barry M. Garraway	University of Sussex, Brighton, East Sussex, UK

Monday, 6 July 2026

S1.1 (13:30-15:30)

Chair: Luiz Davidovich

- S1.1.1** G S Agarwal (College Station, USA)
13:30-13:55 *Waveguide QED - from Quantum Nonreciprocity to Dimerized Entanglement* (invited talk)
- S1.1.2** N R Rivera (Ithaca NY, USA)
13:55-14:20 *Predicting and Controlling Quantum and Classical Noise Response in Multimode Nonlinear Photonics* (invited talk)
- S1.1.3** E E Mikhailov, K Wen, C Gabaldon, I Novikova
14:20-14:40 (Williamsburg VA, USA)
Uncovering Hidden Spatial Quantum Modes of Squeezed Vacuum (invited talk)
- S1.1.4** S Kim, B. S. Ham (Gwangju, South Korea)
14:40-15:05 *Experimental demonstrations of coherence de Broglie wavelength for superresolution sensing* (invited talk)
- S1.1.5** V Rodimin, Y Kurochkin, K Kravtsov, R-M Chua (Abu Dhabi, United Arab Emirates), X Zhang (Abu Dhabi, United Arab Emirates; Singapore, Singapore), A Ponasenko, J A Grieve (Abu Dhabi, United Arab Emirates)
15:05-15:30 *Broadband Characterization of Polarization Mode Dispersion for Quantum Communication Channels* (invited talk)

S1.2 (16:00-19:00)**Chair: Girish Agarwal**

- S1.2.1** K R A Hazzard (Houston TX, USA)
16:00-16:25 *What Is a Phase of Matter in a Cavity?* (invited talk)
- S1.2.2** V V Kocharovsky (College Station, TX, USA)
16:25-16:50 *Hybrid, Atom and Photon Boson Sampling* (invited talk)
- S1.2.3** D Seletskiy (Albuquerque NM, USA; Montréal, Canada), G Demontigny, S Virally (Montréal, Canada)
16:50-17:15 *Ultrafast Bright Quantum Light* (invited talk)
- S1.2.4** E Shahmoon (Rehovot, Israel)
17:15-17:40 *Quantum Light-Matter Interfaces with Tweezer Atomic Arrays* (invited talk)
- S1.2.5** H Nha (El Paso, USA)
17:40-18:05 *Characterizing and Observing Quantum Multipartite Entanglement* (invited talk)
- S1.2.6** B Min (Daejeon, South Korea)
18:05-18:30 *Photonic Time Crystals: Transport, Emission, Squeezing* (invited talk)

Tuesday, 7 July 2026**S1.3 (13:30-15:30)****Chair: Kaden Hazzard**

- S1.3.1** J M Rost (Dresden, Germany)
13:30-13:55 *Relational Quantum Light* (invited talk)
- S1.3.2** V M Schäfer (Heidelberg, Germany)
13:55-14:20 *Searching for a Variation of the Fine Structure Constant with Highly Charged Ions* (invited talk)
- S1.3.3** C Sanner (Fort Collins CO, USA)
14:20-14:45 *New Tests of Relativity with Optical Ion Clocks* (invited talk)

S1.3.4 14:45–15:10 Z Zager, D Pham, W Fan, H E Tureci (Princeton NJ, USA)

Stabilization and Formation of Primordial Hydrogen in Non-Perturbative QED₂ (invited talk)

S1.3.5 15:10–15:30 S J Borden, A M Dana, K Guy, M B Nguyen, A Grinin, A A Geraci (Evanston IL, USA)

Progress Towards Non-Newtonian Gravity Searches with Optically Levitated Force Sensors (invited talk)

S1.4 (16:00–17:30)

Chair: Byoung Ham

S1.4.1 16:00–16:20 I Novikova, R Behary, W Torg, E E Mikhailov, S A Aubin (Williamsburg VA, USA)

Rydberg Atomic Vector Electrometer (RAVE) for Static Electric Fields (invited talk)

S1.4.2 16:20–16:45 B M Garraway (Brighton, UK)

Dressing Ultra-Cold Atoms for Matter-Wave Bubbles and Rings (invited talk)

S1.4.3 16:45–17:10 F Atzori (Turin, Italy), N Lal (Gaithersburg MD, USA), C M Nunn (College Park MD, USA; Gaithersburg MD, USA), M V Jabir (Gaithersburg MD, USA), D Ahn (College Park MD, USA; Gaithersburg MD, USA), F Piacentini, I P Degiovanni, M Genovese (Turin, Italy), I A Burenkov, S V Polyakov (College Park MD, USA; Gaithersburg MD, USA)

Certifying Path-Entanglement over Quantum Networks Using Only Quantum Resources (invited talk)

S1.4.4 17:10–17:35 P M Kraus (Amsterdam, The Netherlands)

Ultrafast Nanoscopy by Deactivated High-Harmonic Generation from Solids (invited talk)

Wednesday, 8 July 2026

S1.5 (13:30-15:30)

Chair: Ralf Röhlsberger

- S1.5.1** A Derevianko (Reno NV, USA)
13:30-13:55 *Theoretical Aspects of Developing the Th-229 Nuclear Clock* (invited talk)
- S1.5.2** L von der Wense (Mainz, Germany)
13:55-14:20 *Laser Spectroscopy of the ^{229}Th Nuclear Transition - Current Status and Applications* (invited talk)
- S1.5.3** W-T Liao (Taoyuan, Taiwan)
14:20-14:40 *Gravitational Photon Echo Using Thorium-229 Nuclear Clock Transition* (invited talk)
- S1.5.4** X Zhang, O A Kocharovskaya (College Station, TX, USA)
14:40-15:05 *Quantum Memory for Hard X-Ray Photons* (invited talk)
- S1.5.5** S Sadashivaiah, B Pandit, B Marx-Glowna, R Loetzsch, T Wunderlich, Y Wang (Jena, Germany), L Bocklage (Hamburg, Germany), B Detlefs, C Sahle (Grenoble, France), R Röhlsberger (Hamburg, Germany; Jena, Germany)
15:05-15:30 *Coherent ^{181}Ta Time-Domain Nuclear Resonant Scattering at 6.2 keV* (invited talk)

S1.6 (16:00-19:00)

Chair: Andrei Derevianko

- S1.6.1** J von Zanthier (Erlangen, Germany)
16:00-16:25 *New Results of Incoherent Diffraction Imaging (IDI) for X-Ray Structure Analysis* (invited talk)
- S1.6.2** X J Kong (Shanghai, China)
16:25-16:50 *From Multiexcitation to Superradiant Burst in Resonant Nuclear X-Ray Emission* (invited talk)

- S1.6.3** F F Karpeshin, K V Chekirda, E Yu Korzinin, Y A Kustikov, A A Neklyudova, A N Pronin, L F Vitushkin (St.-Petersburg, Russia)
16:50–17:15 *Electron-Nuclear Resonance as the Alternative Path to Nuclear Clocks* (invited talk)
- S1.6.4** M Gerharz, J Evers (Heidelberg, Germany)
17:15–17:40 *Nuclear Quantum Dynamics at X-Ray Free-Electron Lasers*
- S1.6.5** Z-A Peng, C H Keitel, J Evers (Heidelberg, Germany)
17:40–18:05 *Parametric Mössbauer Radiation: General Diffraction Geometry and Coherent Amplification* (invited talk)
- S1.6.6** A Sandhu (Tempe AZ, USA)
18:05–18:30 *Compact X-Ray Free Electron Laser Development and Applications* (invited talk)
- S1.6.7** J M Baxter (Menlo Park CA, USA)
18:30–18:50 *Towards Quantum Imaging with X-rays at LCLS* (invited talk)

Thursday, 9 July 2026

S1.7 (13:30–15:30)

Chair: Denis Seletskiy

- S1.7.1** H Merdji (Palaiseau, France)
13:30–13:55 *Quantum Nature of High Harmonic Generation* (invited talk)
- S1.7.2** C Heide (Orlando FL, USA)
13:55–14:15 *Frontiers in Petahertz Electronics*
- S1.7.3** A Marandi (Pasadena CA, USA)
14:15–14:40 *Ultrafast Quantum and Classical Nonlinear Nanophotonic Circuits* (invited talk)
- S1.7.4** E Lustig (Haifa, Israel)
14:40–15:05 *Controlling Multimode Gaussian States of Light in Nonlinear Micro-Resonators* (invited talk)

- S1.7.5** S M Shahriar, J Li (Evanston IL, USA)
 15:05–15:30 *Nano-particle Matter-Wave Interferometry for Ultra-Sensitive Rotation Sensing and Test of Quantum Gravity* (invited talk)

S1.8 (16:00-19:00)

Chair: Ido Kaminer

- S1.8.1** L Yang (St. Louis MO, USA)
 16:00–16:25 *Exceptional Points in Lasing Systems: From Loss-Induced Lasing to Laser Mode Braiding* (invited talk)
- S1.8.2** S Kotochigova (Philadelphia PA, USA)
 16:25–16:45 *Laser-Controlled Nonadiabatic Processes in Excited-State Molecules*
- S1.8.3** H B Li (Coral Gables, FL, USA)
 16:45–17:05 *Optical Two-Dimensional Coherent Spectroscopy of Color-Center Arrays in Diamond* (invited talk)
- S1.8.4** A N Montanari, A E D Barioni, A E Motter (Evanston IL, USA)
 17:05–17:25 *Disorder-Promoted Synchronization and Coherence in Coupled Laser Networks* (invited talk)
- S1.8.5** J P von der Weid (Rio de Janeiro, Brazil), P Tovar (Ottawa, Canada), W Margulis (Rio de Janeiro, Brazil)
 17:25–17:45 *Distributed Random Lasing Sensors* (invited talk)

Friday, 10 July 2026

S1.9 (13:30-15:30)

Chair: Barry Garraway

- S1.9.1** A K Karnieli (Haifa, Israel)
 13:30–13:55 *Towards Entanglement of Free-Electron Pairs and Free-Electron-Bound-Electron Systems* (invited talk)

- S1.9.2** 13:55–14:15 J Peatross, M Ballif, K Barr (Provo UT, USA), N Sá (Ponta Delgada, Portugal), Y Sun, M Ware (Provo UT, USA)
Characterizing Polarization of Nonlinear Thomson Scattering (invited talk)
- S1.9.3** 14:15–14:40 P J Ho, A Venkatesh, C Knight (Lemont, IL, USA), S Kuschel (Darmstadt, Germany), T Gorkhover (Hamburg, Germany), L Young (Lemont, IL, USA)
Coherence and Structural Information in Intense X-Ray-Driven Systems (invited talk)
- S1.9.4** 14:40–15:05 T Heldt, H Liang, L Guth, J-H Oelmann, A Agarwal, L Matt, K Z Hatsagortsyan, C H Keitel, T Pfeifer, J R Crespo López-Urrutia (Heidelberg, Germany)
Ultrafast Kapitza-Dirac Effect in a Femtosecond Enhancement Cavity (invited talk)
- S1.9.5** 15:05–15:30 Y Sivan (Be'er Sheva, Israel)
Ultrafast Optical Nonlinearity of Transparent Conducting Oxides (invited talk)

S2 — Strong Field & Attosecond Physics

Seminar Co-Chairs

Reinhard Kienberger	Technische Universität München, Garching, Bavaria, Germany
Christoph Lemell	Technische Universität Wien, Vienna, Austria

Monday, 6 July 2026

S2.1 (13:30-15:30)

Chair: Reinhard Kienberger

- S2.1.1** 13:30-14:00 L Funke (Dortmund, Germany), M Ilchen, S Serkez (Hamburg, Germany), W Helml (Dortmund, Germany)
On- and Off-Resonance Double-Core-Hole Electron Dynamics in Neon (invited talk)
- S2.1.2** 14:00-14:30 Z Jiang, S Pan, J Chen, M Zhu, C Zhao, Y Wang, R Zhang, J Lu, L Han, S Xiong, D Wu, W Li, S Jiang, H Ni, J Wu (Shanghai, China)
Nonlinear Atomic Tunnelling Boosted by Bright Squeezed Vacuum (invited talk)
- S2.1.3** 14:30-14:55 B S Dalen (Oslo, Norway)
Photoelectron Spectra Calculated from Absorption with Applications
- S2.1.4** 14:55-15:25 R Y Bello (Madrid, Spain), L M Koll (Berlin, Germany), A J Suñer-Rubio (Madrid, Spain), T Witting (Berlin, Germany), A Palacios, F Martín (Madrid, Spain), J J Vrakking (Berlin, Germany)
Entanglement and Electronic Coherence in Attosecond Molecular Photoionization (invited talk)

S2.2 (16:00-18:00)**Chair: Wolfram Helml**

- S2.2.1** 16:00-16:30 S Hell (Jena, Germany), P Winter (Hannover, Germany), M Gärttner, J Späthe, D Milosevic, G G Paulus (Jena, Germany), M Lein (Hannover, Germany), M Kübel (Jena, Germany)
Multiphoton Ionization Quantum Eraser (invited talk)
- S2.2.2** 16:30-16:50 S Marggi Poullain (Madrid, Spain)
From Freeman Resonances to Resonance-Enhanced ATI: The Role of Vibrational Structure in Strong-Field Molecular Ionization
- S2.2.3** 16:50-17:10 J Zlatník, M Čížek (Prague, Czech Republic)
Metastable States in Vibrational Dynamics of Electron Photodetachment from Molecular Anions
- S2.2.4** 17:10-17:35 S V Popruzhenko, V V Strelkov, D I Tyurin (Moscow, Russia)
Collective Tunnel Effect in Atoms Driven by Strong Laser Fields

Wednesday, 8 July 2026**S2.3 (13:30-15:30)****Chair: Jan Michael Rost**

- S2.3.1** 13:30-14:00 L DiMauro (Columbus OH, USA)
High Harmonic Spectroscopy of Binary Liquids (invited talk)

- S2.3.2** 14:00–14:30 L Faeyrman (Rehovot, Israel), J Zhang (Beijing, China), R Weiss (Rehovot, Israel), E B Molinero (Madrid, Spain), V Narovlansky (Princeton NJ, USA), T Arusi-Parpar, B D Bruner, S Shames, J Xiao, B Yan (Rehovot, Israel), M Ivanov, O Smirnova (Berlin, Germany), A Jimenez-Galan, R E F Silva (Madrid, Spain), L-Y Peng (Beijing, China), R Piccoli (Venice, Italy), A J Uzan-Narovlansky (Princeton NJ, USA), N Dudovich (Rehovot, Israel)
Observation of the Interband Berry Phase in Light-Driven Solids - Above and Below the Tunneling Barrier (invited talk)
- S2.3.3** 14:30–15:00 C Peltz (Rostock, Germany), C Bostedt (Villigen, Switzerland), E Rühl (Berlin, Germany), R Signorell (Zürich, Switzerland), T Fennel (Rostock, Germany)
Ultrafast Near-Field-Controlled Dynamics and Disintegration of Isolated Nanoparticles (invited talk)
- S2.3.4** 15:00–15:30 S Neb (Zürich, Switzerland), D Shin (Gwangju, South Korea), F Burri, M Hollm, E de Vos, D A Kuznetsov, C R Müller, A Fedorov (Zürich, Switzerland), S A Sato (Sendai, Japan; Hamburg, Germany), A Rubio (Hamburg, Germany; New York NY, USA), U Keller, L Gallmann (Zürich, Switzerland)
Local Fields as a Probe for Non-Adiabatic Carrier-Phonon Dynamics (invited talk)

S2.4 (16:00-18:00)

Chair: Lukas Gallmann

- S2.4.1** 16:00–16:30 T Fennel (Rostock, Germany)
Attosecond Physics with Nanotips (invited talk)

- S2.4.2** 16:30–17:00 C Medina (Heidelberg, Germany), K Steiniger, B Marre (Dresden, Germany), M Mudrich, A. laegdsmand (Kassel, Germany), S Krishnan (Chennai, India), K Sishodia, M Albrecht, E Klimesova (Dolní Břežany, Czech Republic), W Zhang, D Moottheril, N Rapp (Heidelberg, Germany), S Krasnokutski (Jena, Germany), R Moshhammer (Heidelberg, Germany), M Krikunova (Dolní Břežany, Czech Republic), T Pfeifer (Heidelberg, Germany)
PICongPU Modeling of Nanoplasma Formation in Helium Nanodroplets Irradiated by Intense Femtosecond Laser Pulses (invited talk)
- S2.4.3** 17:00–17:30 U Höfer (Marburg, Germany; Regensburg, Germany), R Huber (Regensburg, Germany)
Subcycle Bandstructure Videography of Electrons Driven by Strong Light Fields (invited talk)
- S2.4.4** 17:30–18:00 J M Rost (Dresden, Germany)
Sensing Coherent Phonon Dynamics in Solids with Delayed Even Harmonics (invited talk)

Thursday, 9 July 2026

S2.5 (13:30–15:30)

Chair: Ralf Röhlsberger

- S2.5.1** 13:30–14:00 Z Chang (Ottawa, Canada)
High-Power MIR Lasers for Strong Field Experiments
- S2.5.2** 14:00–14:30 N Atikah Azali, T Fuji (Nagoya, Japan)
Dissipative Soliton Femtosecond 2 μm Oscillator Based on a Double-Clad Tm:ZBLAN Fiber (invited talk)

S2.5.3 14:30–15:00 U G Griebner, M B Bock (Berlin, Germany), F F Furch (Berlin, Germany; Regensburg, Germany), D U Ueberschaer (Berlin, Germany)
Bulk Post-Compression of Multi-10 mJ, Few-ps Pulses at 2 μm – Gaussian- vs Needle-Beam Profiles (invited talk)

S2.5.4 15:00–15:20 Sz Hack (Szeged, Hungary), B G Pusztai (Szeged, Hungary; Kecskemét, Hungary), K Joós (Szeged, Hungary; Cluj-Napoca, Romania), S Varró, A Czirják, P Földi (Szeged, Hungary)
Wave Packet Dynamics in Quantized Electromagnetic Fields: Analytic Insights into Electron-Light Interaction

S2.6 (16:00–18:00)

Chair: Uwe Griebner

S2.6.1 16:00–16:30 R Röhlsberger (Hamburg, Germany; Jena, Germany)
Spectator-Nuclei Reveal Nonlinear Light-Matter Interaction Driven by an X-Ray Free-Electron Laser (invited talk)

S2.6.2 16:30–16:55 F F Karpeshin (St.-Petersburg, Russia)
Three-photon Excitation of the 8.4-eV Nuclear Isomer in $^{229}\text{Th}^{3+}$ Atoms

S2.6.3 16:55–17:25 M Kovacev (Hannover, Germany)
Advanced Laser-Driven Femtosecond Sources of Hard X-Rays (invited talk)

S2.6.4 17:25–17:55 A Trabattoni (Hamburg, Germany; Hannover, Germany)
Quantum Control of Atomic Transitions with a Strong-Field Extreme-Ultraviolet Free-Electron Laser (invited talk)

S4 – Physics and Applications of Nanolasers

Seminar Co-Chairs

Gian Luca Lippi	Université Côte d'Azur, Nice, France
Stephan Reitzenstein	Technische Universität Berlin, Berlin, Germany

Monday, 6 July 2026

S4.1 (13:30-15:30)

Chairs: Christian Schneider, Mathilde Hary

- S4.1.1** M Notomi (Kanagawa, Japan; Tokyo, Japan)
13:30-14:10 *Nonlinearity and Exceptional Points in Non-Hermitian Nanophotonic Systems*
- S4.1.2** R C Schofield, D Lim (London, UK), H S Dhar (Mumbai, India), R A Nyman (Thames, UK), A K Verma, E Clarke, J Heffernan (Sheffield, UK), F Mintert, R F Oulton (London, UK)
14:10-14:50 *Photon Condensation and Giant Critical Slowing in a Semiconductor Microcavity*
- S4.1.3** L Kleebank, F Vewinger (Bonn, Germany), A Camacho-Guardian, V Romero-Rochín, R Paredes (México City, Mexico), M Weitz (Bonn, Germany), J Schmitt (Heidelberg, Germany)
14:50-15:30 *Critical Behaviour of a Uniform Photon Gas Near the BEC Phase Transition*

S4.2 (16:00-18:00)

Chairs: Mathilde Hary, Masaya Notomi

- S4.2.1** C S Schneider (Oldenburg, Germany)
16:00-16:35 *CrSBr Polariton Laser*
- S4.2.2** M Osinski (Albuquerque NM, USA)
16:35-17:10 *Spatial Hole Burning and Current Self-Distribution in Vertical-Cavity Surface-Emitting Lasers*

S5 — Nonlinear Optics & Spectroscopy

Seminar Co-Chairs

Pavel Polynkin	University of Arizona, Tucson, AZ, USA
Stefan Skupin	Institut Lumière Matière, Lyon, France

Thursday, 9 July 2026

S5.1 (13:30-15:30)

Chairs: Pavel Polynkin, Anton Husakou

- S5.1.1** 13:30-13:50 Q Gutierrez, A Houard, T Clark (Palaiseau, France)
Optical Emission Spectroscopy of a Femtosecond Laser Induced Filament Plasma for the Guiding of HV Discharge in Air
- S5.1.2** 13:50-14:05 J Späthe, S Hell, M Wünsche, R Klas, J Rothhardt (Jena, Germany), C Ott (Heidelberg, Germany), G G Paulus, S Fritzsche, M Kübel (Jena, Germany)
High-Harmonic Source for Coincidence Spectroscopy of Non-Linear XUV Photoionization
- S5.1.3** 14:05-14:35 N Cabello, S Nakamura (Nagoya, Japan), Y Zhao (Muroran, Japan), T Fuji (Nagoya, Japan)
Ultrabroadband Mid-Infrared Supercontinuum Generation at 5 kHz by Electric Field Assisted Two-Color Filamentation in Air (invited talk)
- S5.1.4** 14:35-15:05 D Sapkota, N Batista, Y Zhang, J Agnes, D Dempsey, G Nagar, B Shim (Binghamton, NY, USA)
Single-Shot Visualization and Improved Modeling of Long-Range Laser Filamentation in Molecular Gases and Air (invited talk)

S5.2 (16:00-18:00)

- S5.2.1** A Husakou (Berlin, Germany), I Babushkin (Han-
16:00-16:25 nover, Germany)
 Quantum-Classical Description of Photoionization
 (invited talk)
- S5.2.2** A Dogariu (College Station, USA)
16:25-16:55 *Thermal Non-Equilibrium in a Femtosecond Laser*
 Filament using CARS

S6 — Physics of Cold Trapped Atoms and Ions

Seminar Co-Chairs

Vanderlei S. Bagnato	University of São Paulo, São Carlos, SP, Brazil Texas A&M University, College Station, TX, USA
Joachim von Zanthier	University of Erlangen-Nürnberg, Erlangen, Germany

Thursday, 9 July 2026

S6.1 (13:30-15:30)

- S6.1.1** 13:30-14:00 I V Bondarev (Durham, NC 27707, USA), D W Snoke (Pittsburgh, PA 15218, USA)
Charged Bosons Made of Fermions in Bilayer Semiconductors: Crystallization and Melting (invited talk)
- S6.1.2** 14:00-14:25 F Corapi, R T Learn, B Driesen (Toronto, Canada), A Lefebvre, X Leyronas (Paris, France), C J Fujiwara (Bethlehem PA, USA; Toronto, Canada), F Chevy (Paris, France), J H Thywissen (Toronto, Canada)
Transport in the Low Density Fermi Hubbard Model (invited talk)
- S6.1.3** 14:25-14:55 M A Moreno-Armijos, A R Fritsch, A D García-Orozco, S Sab, G Telles (São Carlos, Brazil), Y Zhu (Nice, France), L Madeira (São Carlos, Brazil), S Nazarenko (Nice, France), V S Bagnato (College Station, TX, USA; São Carlos, Brazil)
Observation of Relaxation Stages in a Nonequilibrium Closed Quantum System: Decaying Turbulence in a Trapped Superfluid (invited talk)
- S6.1.4** 14:55-15:20 K Van Houcke (Paris, France), G Pascual (Barcelona, Spain; Paris, France), J Boronat (Barcelona, Spain)
Polarons and Dimerons in the Two-Dimensional Attractive Hubbard Model (invited talk)

S6.2 (16:00-18:00)**Chair: Victor Romero-Rochin**

- S6.2.1** V Tamma (Portsmouth, UK)
16:00-16:30 *Multiparameter Heisenberg Scaling in Arbitrary Optical Networks with Limited Squeezed Resources* (invited talk)
- S6.2.2** D A W Hutchinson, D Hakim (Dunedin, New Zealand)
16:30-16:50 *The Anderson Transition in a Two-Dimensional Ultracold Gas* (invited talk)
- S6.2.3** P Barthel, I Boldin, B Bürger, D Busch, P H Huber, D Niroomand, M Nünnerich, K Rejaibi, C Wunderlich (Siegen, Germany)
16:50-17:20 *Tailoring the All-To-All Interaction of Trapped Ions* (invited talk)
- S6.2.4** J von Zanthier (Erlangen, Germany)
17:20-17:45 *Collective Photon Emission of Correlated Atoms in Free Space* (invited talk)

Friday, 10 July 2026**S6.3 (13:30-15:30)****Chair: Sadhan Adhikari**

- S6.3.1** R Paredes, C Madroñero (México City, Mexico)
13:30-13:50 *Quantum Droplets in Dipolar Bose-Einstein Mixtures in 1D* (invited talk)
- S6.3.2** V Romero-Rochin (México City, Mexico)
13:50-14:20 *Critical Behavior of Light and Matter in Two-Dimensional Pöschl-Teller Potentials* (invited talk)
- S6.3.3** R W Sallatti, L Tomio (São Paulo, Brazil), D Peli, novsky (Hamilton, Canada), A Gammal (São Paulo, Brazil)
14:20-14:45 *Dark Solitons in a Bubble Bose-Einstein Condensate* (invited talk)
- S6.3.4** A Kuklov (New York NY, USA)
14:45-15:15 *Symmetry Induced Condensate of Pairs of Intervalley Excitons* (invited talk)

S7 — Quantum Information Science

Seminar Co-Chairs

Marco Genovese	L'Istituto Nazionale di Ricerca Metrologica, Turin, Italy
Leong Chuan Kwek	Center for Quantum Technologies, Singapore, Singapore

Monday, 6 July 2026

S7.1 (13:30-15:30)

Chair: Milos Nesladek

S7.1.1 13:30-14:05	<u>R Folman and Atom Chip Group</u> (Beer-Sheva, Israel) <i>Quantum Sensors</i> (invited talk)
S7.1.2 14:05-14:35	<u>S Ghose, A Anand, S Srivastava</u> (Waterloo, Canada) <i>Quantum Correlations in Chaotic Systems</i> (invited talk)
S7.1.3 14:35-14:55	<u>K Kravtsov, G De Santis, S Amairi-Pyka, J A Grieve</u> (Abu Dhabi, United Arab Emirates) <i>Optical Ground Station for Satellite-Based QKD: toward industrial-grade implementation</i>
S7.1.4 14:55-15:30	<u>V V Kocharovsky, K Kalra</u> (College Station, TX, USA) <i>Universal Bound on Quantum Advantage in Gaussian Boson Sampling</i> (invited talk)

S7.2 (16:00-18:00)

Chair: Ilaria Gianani

S7.2.1 16:00-16:35	<u>S U Shringarpure, S Park, S Cho, Y S Teo, H Kwon, S Omkar, H Jeong</u> (Seoul, South Korea) <i>Bosonic Noise Suppression with Qumode-Qubit Rotations</i> (invited talk)
S7.2.2 16:35-17:00	<u>C Schubert</u> (Morelia, Mexico) <i>Pair Creation: from Virtual to Real</i> (invited talk)

- S7.2.3** Y Kurochkin, V Rodimin, A Pereszlenyi, J Tembridis,
17:00–17:35 C Vorhemus, V Revici, I Samsonenko, J A Grieve (Abu
Dhabi, United Arab Emirates)
Optimal Transmitter for Last Mile QKD (invited talk)
- S7.2.4** G Tobar (Stockholm, Sweden), J Foo (Waterloo, ON,
17:35–18:00 Canada), S Qvarfort, F Costa (Stockholm, Sweden),
R Bekenstein (Jerusalem, Israel), M Zych (Stockholm,
Sweden)
*Quantum Metasurfaces as Probes of Vacuum Particle
Content*

Tuesday, 7 July 2026

S7.3 (13:30–15:30)

Chair: Aldo Delgado

- S7.3.1** V T Tamma (Portsmouth, UK)
13:30–14:10 *Multi-Parameter Quantum Estimation Based on
Multiphoton Interference with Single Photons and
Squeezed Light* (invited talk)
- S7.3.2** N Bar-Gill (Jerusalem, Israel)
14:10–14:45 *Quantum Dynamics and Control in Diamond* (invited
talk)
- S7.3.3** A I Lvovsky, A Warke, L Gong, M Mishra, A Zhang
14:45–15:20 (Oxford, UK)
Passive microscopy with quantum advantage (invited
talk)

S7.4 (16:00–17:30)

Chair: Vincenzo Tamma

- S7.4.1** E K Karimi (Orange CA, USA)
16:00–16:35 *Spatial Imaging and Sensing with Correlated Bipho-
tons* (invited talk)
- S7.4.2** J A Bergou, P Agarwal (New York NY, USA)
16:35–17:10 *High-Confidence vs Unambiguous Discrimination of
Bell-Like States in Linear Optical Quantum Networks*
(invited talk)

- S7.4.3** V Tamma (Portsmouth, UK)
 17:10–17:30 *Multiparameter Heisenberg Scaling in Arbitrary Optical Networks with Limited Squeezed Resources*

Wednesday, 8 July 2026

S7.5 (13:30–15:30)

Chair: Luis Sanchez-Soto

- S7.5.1** G S Agarwal (College Station, USA)
 13:30–14:05 *Experimental Schemes for the Saturation of Quantum Cramer Rao Bounds for Distributed Sensing* (invited talk)
- S7.5.2** M Genovese (Turin, Italy)
 14:05–14:40 *Toward Practical Application of Quantum Phase Imaging* (invited talk)
- S7.5.3** S Cassina, E Guerrini, M Barbieri, F Giacomini, I Gianani (Rome, Italy)
 14:40–15:15 *A Tale of Two Times: Coupling Frequency and Polarization Clocks in a Page and Wootters Photonic Platform* (invited talk)

S7.6 (16:00–18:00)

Chair: Ekaterina Moreva

- S7.6.1** I Ruo-Berchera, A Bhasvar, A Avella, F Collé, M Genovese (Turin, Italy)
 16:00–16:35 *Covert Quantum Target Sensing* (invited talk)
- S7.6.2** S Shringarpure, Y S Teo, H Jeong (Seoul, South Korea), M Evans (Toronto, Canada), A Greateau, N Treps (Paris, France), L L Sanchez-Soto (Madrid, Spain)
 16:35–17:10 *Experimental Evidence-Based Sub-Rayleigh Source Discrimination* (invited talk)
- S7.6.3** S S Straupe (Moscow, Russia)
 17:10–17:45 *Boson Sampling and Quantum Computing in Programmable Interferometers with Optical Feedback* (invited talk)

Thursday, 9 July 2026**S7.7 (13:30-15:30)****Chair: Ebrahim Karimi**

- S7.7.1** M Nesladek (Hasselt, Belgium)
13:30-14:00 *Photoelectric Quantum Chips for Sensing and Quantum Registers* (invited talk)
- S7.7.2** I Ruo-Berchera, F Picariello, E Losero, S Ditalia Tchernij, P Boucher, M Genovese, I P Degiovanni (Turin, Italy)
14:00-14:30 *Beyond Diffraction Limit by Local Photon Statistics Evaluation*
- S7.7.3** F Piacentini, F Atzori, S Virzì, F Devecchi, D Abbonandolo, A Avella, M Gramegna, I P Degiovanni, M Genovese (Turin, Italy)
14:30-15:10 *Universal Protection of Quantum States From Decoherence* (invited talk)

S7.8 (16:00-18:00)**Chair: János Bergou**

- S7.8.1** E Moreva, G Tomagra, C Stella, H Shirzad, E Bernardi, G Zanelli, E Losero, P Traina, P Apra, F Picollo, I P Degiovanni, V Carabelli, M Genovese (Turin, Italy)
16:00-16:35 *Nanoscale Sensors Based on NV Centers in Diamonds: Metrology, Biomedical Applications and Remaining Challenges* (invited talk)
- S7.8.2** A Delgado (Concepción, Chile)
16:35-17:10 *Quantum Information Processing with Quantum Metasurfaces* (invited talk)
- S7.8.3** I Novikova, R Behary, N DeStefano, M Vorobiov, E E Mikhailov, S A Aubin (Williamsburg VA, USA)
17:10-17:35 *Quantum Electron Tracker, or How to Use Atoms to Diagnose Charge Particles and Plasmas* (invited talk)

Friday, 10 July 2026

S7.9 (13:30-15:30)

Chair: Ferdinand Schmidt-Kaler

- S7.9.1** 13:30-14:00 N A Moroz (Moscow, Russia), L V Gerasimov, D V Kupriyanov (Moscow, Russia; St.-Petersburg, Russia)
Spin vs Position Conjugation in an Interference of Atom Matter Waves (invited talk)
- S7.9.2** 14:00-14:30 L C Kwek (Singapore, Singapore)
Boosting Quantum Synchronization (invited talk)
- S7.9.3** 14:30-15:05 B S Ham (Gwangju, South Korea)
A Quantum Mechanical Analysis of the Coherence De Broglie Wavelength (invited talk)
- S7.9.4** 15:05-15:30 W E Salazar (Singapore, Singapore), G Saxena, J S Baker, T H Kyaw (Toronto, Canada), L C Kwek (Singapore, Singapore)
Stabilizer Statistical Mechanics

S7.10 (16:00-18:00)

Chair: Byoung Ham

- S7.10.1** 16:00-16:25 V V Albert (College Park MD, USA)
Quantum Theory of Molecular Orientations (invited talk)
- S7.10.2** 16:25-16:50 K Kravtsov, S Amairi-Pyka, J A Grieve (Abu Dhabi, United Arab Emirates)
Light Propagation in a Turbulent Atmosphere as Diffusion in the Space of Spatial Modes (invited talk)

S8 – Fiber Optics

Seminar Chair

Miguel Ángel Bello-Jiménez Universidad Autónoma de San Luis Potosí, San Luis Potosí, Mexico

Wednesday, 8 July 2026

S8.1 (16:00-18:00)

Chairs: Luis Poveda-Wong, Miguel Bello-Jiménez

S8.1.1 16:00-16:15 J P von der Weid (Rio de Janeiro, Brazil), P Tovar (Ottawa, Canada), B Costa Lima (Rio de Janeiro, Brazil), N Seino (São Paulo, Brazil)
Build up of Laser Action in Random Fibre Lasers (invited talk)

S8.1.2 16:15-16:45 Y Navarro-Martínez, E Hernández-Escobar, M Bello-Jiménez Dr. (San Luis Potosí, Mexico), R López-Estopier (San Luis Potosí, Mexico; México City, Mexico), M V Hernández-Arriaga, J Flores-González (San Luis Potosí, Mexico), M V Andrés Dr. (Valencia, Spain)
Acousto-Optic Couplers in Biconical Fused Optical Fibers for Tunable Devices and Laser Cavities (invited talk)

S9 — Extreme Light Technologies, Science, and Applications

Seminar Co-Chairs

Stepan Bulanov	Lawrence Berkeley National Laboratory (LBNL), Berkeley, CA, USA
Christoph Keitel	Max Planck Institute for Nuclear Physics, Heidelberg, Germany
Xiaofei Shen	Peking University, Beijing, China

Tuesday, 7 July 2026

S9.1 (13:30-15:30)

Chairs: Xiaofei Shen, Stepan Bulanov

- S9.1.1** 13:30-14:00 E d’Humieres (Talence, France), C L C Lacoste (Ottawa, Canada), A Hirsch-Passicos, C Salu, K Aliane (Talence, France), W Yao (Palaiseau, France), Ph Nicolai, D Raffestin (Talence, France), V T Tikhonchuk (Talence, France; Dolní Břežany, Czech Republic), N Luchier (Grenoble, France), P Antici (Varennes, Canada), F Souris (Talence, France), J Fuchs (Haifa, Israel), M Bardon (Talence, France)
119 Recent Progress in Laser Ion Acceleration Thanks to Innovative Targets and New Interaction Regimes (invited talk)
- S9.1.2** 14:00-14:30 J H Bin (Shanghai, China)
Towards Practical Applications with a Laser-Based Proton Beamline (invited talk)

S9.1.3 C M Lazzarini, P Valenta, I Zymak, A Spadova (Dolní Břežany, Czech Republic), M Jech (Prague, Czech Republic; Dolní Břežany, Czech Republic), S Lorenz, L V N Goncalves (Dolní Břežany, Czech Republic), F Vitha, J Sisma, M Nevrkla (Prague, Czech Republic; Dolní Břežany, Czech Republic), G M Grittani (Dolní Břežany, Czech Republic), S V Bulanov (Kyoto, Japan; Dolní Břežany, Czech Republic)
 14:30–15:00 *Electron Accelerators with Lasers From mJ to kJ at ELI-Beamlines* (invited talk)

S9.2 (16:00–17:30)

Chairs: Stepan Bulanov, Xiaofei Shen

S9.2.1 S S Bulanov (Berkeley CA, USA)
 16:00–16:30 *Optimizing Photon Collider Through Scattering Laser Wavelength Selection*

S9.2.2 M Jirka, J Vabek (Prague, Czech Republic), S V Bulanov (Dolní Břežany, Czech Republic)
 16:30–17:00 *QED Cascade in Multiple Radially Polarized Laser Pulse Collision* (invited talk)

S9.2.3 S Montefiori (Heidelberg, Germany), A Di Piazza (Rochester NY, USA), T Podszus, C H Keitel, M Tamburini (Heidelberg, Germany)
 17:00–17:30 *Essential Nonlocality of Spin- and Polarization-Resolved Distributions in Strong-Field Quantum Electrodynamics* (invited talk)

Wednesday, 8 July 2026

S9.3 (13:30–15:30)

Chairs: Stepan Bulanov, Xiaofei Shen

S9.3.1 X F Shen (Beijing, China)
 13:30–14:00 *Particle Acceleration and Polarization in the Strong-Field QED Regime*

S9.3.2 A Campos, K Hatsagortsyan, C Keitel (Heidelberg, Germany)
14:00–14:30 *Laboratory Cosmology with Free Spinorial Wave Packets* (invited talk)

S9.3.3 Ch Schubert (Morelia, Mexico)
14:30–15:00 *Processes in Strong Fields: The View from the World-line* (invited talk)

S9.4 (16:00–18:00)

Chairs: Xiaofei Shen, Stepan Bulanov

S9.4.1 T Smorodnikova (on behalf of the E-320 collaboration) (Stanford CA, USA)
16:00–16:30 *Experiment 320: Probing Strong-Field QED by Colliding Short Laser Pulses with Ultra-Relativistic Electron Beams* (invited talk)

S9.4.2 R Kienberger (München, Germany)
16:30–17:00 *Extreme Timescale (Attosecond) and Extreme Photon Energy (Gamma Rays)*

S9.4.3 L Fedeli (Gif Sur Yvette, France), B Groussin (Palaiseau, France), P Sikorski, P Bartoli (Gif Sur Yvette, France), A Leblanc (Palaiseau, France), H Vincenti (Gif Sur Yvette, France)
17:00–17:30 *Exploring Strong-Field QED with Doppler-Boosted Harmonic Beams: From Simulations to Experiments* (invited talk)

S10 – Quantum Engineering and Biophotonics

Seminar Co-Chairs

Philip R Hemmer	Texas A&M University, College Station, TX, USA
Alexei Sokolov	Texas A&M University, College Station, TX, USA
Aart J. Verhoef	Texas A&M University, College Station, TX, USA
Alma Fernández González	Texas A&M University, College Station, TX, USA

Monday, 6 July 2026

S10.1 (13:30-15:30)

Chair: Alexei Sokolov

- S10.1.1** E K Karimi (Orange CA, USA)
13:30-14:00 *From Turbulence Prediction to Adaptive Correction: Structured Light for High-Dimensional Quantum Communications*
- S10.1.2** P Blinova, K Wang (Montréal, Canada)
14:00-14:30 *Beyond the Squeezing Spectrum: Output-Field Quantum Fisher Information in Parametric Optical Sensors*
- S10.1.3** D Banguilan, Y Iye, T Fujii (Nagoya, Japan)
14:30-15:00 *Chirped Pulse Amplification at 1750 nm Based on Thulium-Doped Core and Terbium-Doped Cladding Fluoride Fibers*
- S10.1.4** G Klimeck, I Okhmatovskii, A Toro (West Lafayette IN, USA)
15:00-15:30 *Improving THz Radiation Power in Realistic Multi-Quantum Well Devices*

S10.2 (16:00-19:00)

- S10.2.1** D Novoa (Bilbao, Spain)
16:00-16:25 *Enhanced Polarization Purity of Stimulated Raman Conversion in Two-Fold Symmetric Anti-Resonant Fibers*
- S10.2.2** A V Sokolov (College Station, TX, USA)
16:25-16:50 *Quantum, Nonlinear-Optics and Near-Field Sensors and Tools for Biophotonics*
- S10.2.3** I Chuprina, G Genov, C Findler, J Lang (Ulm, Germany), P Siyushev (Hasselt, Belgium; Ulm, Germany), F Jelezko (Ulm, Germany)
16:50-17:15 *Photoelectric Readout Noise and Magnetic Field Sensitivity Limits of NV Centers in Diamond*
- S10.2.4** S F DiMarco, N Altangerel, A Hazrathosseini, A H Knap, Y Liu, S Hsu, P R Hemmer, A M Zheltikov, A V Sokolov, M O Scully (College Station, TX, USA)
17:15-17:40 *Quantum Ocean: Charactering Deep Ocean Water using Density Function Theory and Raman Spectroscopy*
- S10.2.5** M E Darwin (Cottbus, Germany), D Berndt (Dresden, Germany), F Bennewitz (Cottbus, Germany)
17:40-18:05 *An Iterative Zernike-Mode Sensorless Adaptive Optics Approach for Microscopy*

S11 – Metasurfaces and Metamaterials

Seminar Chair

Ebrahim Karimi

Chapman University, Orange, CA,
USA
University of Ottawa, Ottawa, ON,
Canada

Tuesday, 7 July 2026

S11.1 (13:30-15:30)

Chair: Francesco Di Colandrea

S11.1.1 E Eadie, S Deep, P Bianucci (Montréal, Canada)
13:30-14:00 *Nonlinear Optics in Surface Nanoscale Axial Resonators*

S11.1.2 I V Bondarev (Durham, NC 27707, USA)
14:00-14:30 *Confinement-Induced Nonlocality and Optical Nonlinearity in Transdimensional Plasmonics* (invited talk)

S11.1.3 D A Pushin (Waterloo, Canada)
14:30-15:00 *Generation and Control of Multimode Structured Neutron Beams via Phase-Grating Arrays*

S11.1.4 Z Cheng (Shanghai, China)
15:00-15:30 *TBA*

S11.2 (16:00-17:30)

Chair: Pablo Bianucci

S11.2.1 F Romanato (Padua, Italy; Basovizza (TS), Italy),
16:00-16:30 A Vogliardi, D Bonaldo (Padua, Italy), S Dal Zilio (Padua, Italy; Basovizza (TS), Italy), V Apolloni, G Ruffato (Padua, Italy)
Metasurfaces Enabling Topological Control of Vector Beams

- S11.2.2** N Dehghan (Ottawa, Canada)
16:30–17:00 *Generating and Characterizing Structured Entanglement with Liquid-Crystal Metasurfaces*
- S11.2.3** F Di Colandrea (Napoli, Italy), A D’Errico (Ottawa, Canada), E Karimi (Ottawa, Canada; Orange CA, USA)
17:00–17:25 *Quantum State Tomography and Channel Engineering with Liquid-Crystal Metasurfaces*

S12 – Optical Computing and Neural Networks

Seminar Co-Chairs

Alexander Lvovsky	University of Oxford, Oxford, United Kingdom
Peter McMahon	Cornell University, Ithaca, NY, USA
Lu Fang	Tsinghua University, Beijing, China

Monday, 6 July 2026

S12.1 (13:30-15:30)

- S12.1.1** L G Wright (New Haven CT, USA)
13:30-14:00 *On the Possibility of a Virtuous Cycle Between Photonics and Computing*
- S12.1.2** W Renninger (Rochester NY, USA)
14:00-14:30 *Offset-Diagonal Computing for Scalable and Sparsity-Enabled Optical Processors*
- S12.1.3** F A Aflatouni (Philadelphia PA, USA)
14:30-15:00 *Optical Commuting: From Deep Neural Networks to Using Solvers*
- S12.1.4** A I Lvovsky, M Filipovich, K Bearne, A Duplinskii
15:00-15:30 (Oxford, UK)
Quantum Computational Machine Vision

S12.2 (16:00-18:00)

- S12.2.1** B Carpinlioglu, U Tegin (Istanbul, Turkey)
16:00-16:30 *Scalable and Energy-Efficient Optical Computing Architectures*
- S12.2.2** A Singha, K Wang (Montréal, Canada)
16:30-17:00 *Fisher-Aware Training of Multiplane Light Conversion for Optical Parameter Estimation*
- S12.2.3** M G Suh (Sunnyvale, CA, USA)
17:00-17:30 *WDM and Hyperspectral MAC: Pathways to Optical Advantage in Short-Reach Systems*

Tuesday, 7 July 2026

S12.3 (13:30-15:30)

- S12.3.1** H E Tureci (Princeton NJ, USA)
13:30-13:55 *Measurement-Adapted Eigentask Representations for Photon-Limited Optical Readout*
- S12.3.2** F Cardano (Napoli, Italy)
13:55-14:20 *Free-Space Photonic Circuits for Spatially Structured Light*
- S12.3.3** M Hary, A Skalli, L Cardenas-Razo, A Ermolaev (Besançon, France), M Marciniak, M Gebiski, J Lott (Lodz, Poland), G Genty (Tampere, Finland), T Czyszanowski (Lodz, Poland), J M Dudley, D Brunner (Besançon, France)
14:20-14:40 *Principles and Metrics of Photonic Learning Machines*
- S12.3.4** R Hamerly (Berkeley CA, USA)
14:40-15:05 *Large-Scale Photonic Homodyne Tensor Processor*

Wednesday, 8 July 2026

S12.4 (13:30-15:30)

- S12.4.1** A Marandi (Pasadena CA, USA)
13:30-14:00 *Nonlinear Resonator Networks: From Complex Optics to Advanced Computing and Sensing*
- S12.4.2** H T Takesue (Kanagawa, Japan)
14:00-14:30 *Evaluation of Coherent Ising Machine as an Associative Memory*
- S12.4.3** H Cao (New Haven CT, USA)
14:30-15:00 *Optical Kernel Machine with Programmable Nonlinearity*
- S12.4.4** Z Xue, Z Xu, W Wu, Y Jiang, L Fang (Beijing, China)
15:00-15:25 *Scalable Integrated Photonic Computing*

Poster Session

Seminar 2 – Strong Field & Attosecond Physics

- P.S2.1** J Zlatník, R Čurík, M Čížek (Prague, Czech Republic)
Dissociative Recombination via Nonlocal Resonance Model for a Discrete State in Coulomb Continuum
- P.S2.2** L Faeyrman (Rehovot, Israel), J Zhang (Beijing, China), M Ivanov (Berlin, Germany), L-Y Peng (Beijing, China; Taiyuan, China), N Dudovich (Rehovot, Israel), R Piccoli (Venice, Italy)
Sub-Cycle Field Driven Dynamical Berry Phase in Solids

Seminar 5 – Nonlinear Optics & Spectroscopy

- P.S5.1** F Castro (San José, Costa Rica)
Robust Spectral Detection of Contrast Agents in Photoacoustic Imaging
- P.S5.2** F Castro, D Dumani (San José, Costa Rica)
A Dual-Wavelength Spectroscopic Framework for Contrast-Agent Detection in Photoacoustic Imaging

Seminar 7 – Quantum Information Science

- P.S7.1** I F Morais, G E L Peixe, C E Peixoto, M S Santos, A R Fritsch (São Carlos, Brazil)
Building a Strontium Ion Trap Experiment for Precision Measurements and Quantum Communication
- P.S7.2** D Hutchinson (Singapore, Singapore; Dunedin, New Zealand), D Hakim (Dunedin, New Zealand), L C Kwek (Singapore, Singapore)
Superradiant Criticality and Quantum-Enhanced Sensing in a Quantum Rabi Ring

- P.S7.3** F Schmidt-Kaler (Mainz, Germany)
SLE-structuring and Surface Polishing for the Fabrication of Multi-Segmented Ion Traps

Seminar 8 – Fiber Optics

- P.S8.1** J M Cruz-Duarte (Lille, France), J Korterik, H L Offerhaus (Enschede, The Netherlands), L de la Cruz-May (Campeche, Mexico), L F Granados-Zambrano (Enschede, The Netherlands), L Poveda-Wong (San José, Costa Rica), D Jauregui-Vazquez, E de la Cruz (Esenada, Mexico), J A Alvarez-Chavez (Delft, The Netherlands)
Automated Machine Learning Pipeline for Modelling the Spectral Response of a Tapered Optical Fibre Temperature Sensor (invited talk)

Seminar 9 – Extreme Light Technologies, Science, and Applications

- P.S9.1** C M Lazzarini, M Nevrkla, G M Grittani (Dolní Břežany, Czech Republic), D Papp, H Hafz, C Kamperidis (Szeged, Hungary)
State-of-the-Art Laser-Driven Electron Accelerators and Applications at ELI-ERIC

Tutorial Course: Quantum Biophotonics

Alexei Sokolov

Texas A&M University, College Station, TX, USA

Dr. Alexei Sokolov is Distinguished Professor of Physics and Astronomy and Stephen E. Harris Professor of Quantum Optics at the Institute for Quantum Science and Engineering, Texas A&M University. His pioneering work on molecular coherence has enabled ultrasensitive detection of biomolecules and has been recognised with the Lomb Medal (OSA), the Hyer Award (APS), and the Lamb Prize (PQE). His research interests include ultrafast molecular dynamics, laser field shaping, plasmonic nanostructures, and quantum sensing.

Summary

Light is an electromagnetic disturbance propagating in space-time, and it comes in packets of energy called photons. This tutorial introduces the quantum nature of light-matter interactions and their applications in modern biophotonics. Topics include squeezed light, entangled photons, plasmon-enhanced spectroscopy, tip-enhanced Raman spectroscopy (TERS), coherent anti-Stokes Raman scattering (CARS), quantum molecular coherence, and label-free biosensing with molecular-level sensitivity.

Level: Advanced Beginner

The course targets students and early-career professionals with basic knowledge of quantum mechanics, electricity and magnetism, and undergraduate-level optics who are interested in biological, agricultural and medical applications of laser spectroscopy, plasmonics, molecular coherence, squeezed light, and quantum sensing.

Schedule

Date	Time	Venue	Hall
Thursday, 9 July	13:30-15:30 16:00-17:00	Marriott Hacienda Belén	Hall A

