

# Preliminary Symposium Agenda

## Sunday 25 August

14:00-14:15 Open speeches

### Session 1 New trends in laser physics

14:15-14:45 **G. Mourou**, France, “Extreme light: Laser ascent to subatomic physics”

14:45-15:15 **S. Bagayev, A. Taichenachev**, Russia, “Ultra-precise optical clock of new generation – leap into future”

15:15-15:45 **W. Huang**, China, “Recent progress in organic LEDs and lasers”

15:45- 16:00 **P. Melent’ev**, Russia, “Nano spatially and femto temporally localized laser source”

*16:00-16:30 Coffee Break*

### Session 2 High-resolution spectroscopy and fundamental metrology I

16:30-17:00 **C. Tamm**, Germany, “Single-Ion optical frequency standards based on  $^{171}\text{Yb}^{+}$ ”

17:00-17:30 **S. Bize**, France, “Mercury optical lattice clock at LNE-SYRTE”

17:30-18:00 **M. Okhapkin**, Russia/Germany, “Laser spectroscopy of trapped thorium ions: Towards a nuclear optical clock”

18:00-18:30 **M. Takamoto**, Japan, “Optical lattice clocks with  $^{87}\text{Sr}$  in a cryogenic environment”

*19:00-21:00 Welcome Party*

## Monday 26 August

### Session 3 Physics of ultracold atoms, ions, and molecules I

09:00-09:30 **F. Riehle**, Germany, “Photoassociation spectroscopy of cold calcium near the intercombination line”

09:30-10:00 **A. Turlapov**, Russia, “Two-dimensional Fermi and Bose gases with tunable interactions”

10:00 – 10:30 **H. Perrin**, France, “Collective modes of a 2D quantum gas”

10:30 – 11:00 **A. Akimov**, Russia/USA, “Laser cooling near photonic nanostructures”

*11:00-11:30 Coffee Break*

### Session 4 Physics of ultracold atoms, ions, and molecules II

11:30 – 12:00 **A. Goncharov**, Russia, “Ultra cold magnesium atoms for an optical frequency standard”

12:00 – 12:30 **A. Browaeys**, France, “Direct measurement of the van der Waals interaction between two Rydberg atoms”

12:30 – 13:00 **I. Ryabtsev**, Russia, “Spectroscopy of cold Rydberg atoms and their application in quantum information”

*13:00-14:00 Lunch*

### Session 5 Nanophotonics, plasmonics, metamaterials and complex media I

14:00 – 14:30 **V. Klimov**, Russia, “Energy sinks in optics of metamaterials: fundamentals and applications”

14:30 – 15:00 **B. Chichkov**, Germany, “Laser printing of nanoparticles and living cells”

15:00 – 15:30 **S. Arakeljan**, Russia, “Laser-induced nanostructured cluster materials: functional capability for experimental verification of macroscopic quantum phenomena”

15:30 – 16:00 **A. Laliotis**, France, “Experimental observations of temperature effects in the atom-surface interaction in the near-field regime of Casimir-Polder”

*16:00-16:30 Coffee Break*

## Session 6 Ultrahigh laser fields and attoscience

16:30-17:00 **A. Sergeev**, Russia, “Ultrarelativistic physics with new generation of extreme light sources”

17:00 – 17:30 **R. Dabu**, Romania, “Optical parametric amplification at critical wavelength degeneracy – a possible solution for multi-PW laser systems”

17:30 – 18:00 **V. Trunov**, Russia, “Ultra-intense laser systems based on coherent beam combining”

18:00 – 18:30 **A. Apolonskiy**, Germany, “High-power MHz femtosecond laser sources coming soon”

### 18:40 – 20:00 Posters I

*20:00 – 21:00 Dinner*

*21:00 Concert*

## Tuesday 27 August

### Session 7 Fiber optics and fiber lasers

09:00 – 09:30 **S. Turitsyn**, England, “Ultra long fiber lasers: from source of radiation to transmission medium”

09:30 – 10:00 **S. Babin**, Russia, “Random fiber laser: new efficient laser source with unique properties”

10:00 – 10:30 **F. Song**, China, “Laser performance of the erbium-ytterbium-codoped fiber with high concentration”

10:30 – 10:45 **S. Kobtsev**, Russia, “Mode-locked fibre lasers with high-energy pulses”

10:45 – 11:00 **W. Shi**, China, “High energy pulsed fiber lasers and applications for nonlinear frequency conversion”

*11:00-11:30 Coffee Break*

### Session 8 Quantum optics and quantum information I

11:30 – 12:00 **M. Ducloy**, France, “Surface interactions in atom interferometry”

12:00 – 12:30 **S. Kilin**, Belarus, *Title will be know soon*

12:30 – 13:00 **A. Porzio**, Italy, “Continuous Variable Entanglement at optical frequency by a type-II cw OPO”

*13:00-14:00 Lunch*

### Session 9 Nonlinear optics and novel phenomena

14:00 – 14:30 **Ken-ichi Ueda**, Japan, “Ceramic lasers for new scheme of scaling law of high power lasers”

14:30 – 15:00 **G. Matvienko**, Russia, “The interaction of terawatt femtosecond radiation with atmospheric media”

15:00 – 15:30 **D. Sidorov-Biryukov**, Russia, “Coherent four wave mixing with chirped pulses”

15:30 – 15:45 **S. Vatik**, Russia, “Novel high-efficiency thin-disk lasers based on Tm:KLu(WO<sub>4</sub>)<sub>2</sub>/KLu(WO<sub>4</sub>)<sub>2</sub> epitaxy”

15:45 – 16:00 **E. Martynovich**, Russia, “Evolution of tracks induced by laser filaments in transparent media”

*16:00-16:30 Coffee Break*

## Session 10 Applications of lasers in nanotechnologies, biomedicine and other fields I

16:30 – 17:00 **A. Shkurinov**, Russia, Terahertz optics in biology and nanotechnology

17:00 – 17:30 **M. Tani**, Japan, Electro-optic sampling detection of THz pulsed radiation based on Cherenkov phase-matching

17:30 – 18:00 **B. Knyazev**, Russia, Advances in optics and photonics in the terahertz region at SPIN workstation of Novosibirsk free electron laser

18:00 – 18:30 **V. Fedorov**, Russia, “Bioeffects of Terahertz Radiation: Possibility of Biohazard”

18:30 – 18:45 **N. Nikolaev**, Russia, “Study of potassium titanyl phosphate nonlinear optical crystals by the method of wideband terahertz spectroscopy”

### 18:45 – 20:00 Postres II

*20:00 – 21:00 Dinner*

*21:00 – 22:00 Meeting of International Advisory Committee*

## Wednesday 28 August

### Session 11 High-resolution spectroscopy and fundamental metrology II

09:00 – 09:30 **F. Levi**, Italy, “Nitrogen cooled Cs fountain at INRIM. Accuracy at the  $10^{-16}$  level”

09:30 – 10:00 **J. Thomsen**, Denmark, “Active Suppression of Thermal Noise in Optical Cavities”

10:00 – 10:30 **D. Calonico**, Italy, “LIFT: the Italian fiber network for time and frequency metrology”

10:30 – 11:00 **V. Ovsyannikov**, Russia, “Accurate account of multipole and nonlinear effects on uncertainties of Strontium optical lattice clocks”

*11:00-11:30 Coffee Break*

### Session 12 Quantum optics and quantum information II

11:30 – 12:00 **J. Thompson**, USA, “Exploring collective effects for precision measurement” (could be moved to Spectroscopy and to Session 13)

12:00 – 12:30 **V. Zadkov**, Russia, “Quantum optics of atoms near plasmonic nanostructures”

12:30 – 13:00 **D. Matsukevich**, Singapore, “Quantum logic for control and manipulation of molecular ions”

*13:00-14:00 Lunch*

### Session 13 Applications of lasers in precision measurements

14:00 – 14:30 **N. Beverini**, Italy, “Measuring general relativity effects in a terrestrial lab through laser gyroscopes”

14:30 – 15:00 **V. Rudenko**, Russia, “Low frequency signals of large scale GW-interferometers”

15:00 – 15:30 **P. Chapovsky**, Russia, “Detection of ultra weak interactions with the help of nuclear spin isomers of molecules”

15:30 – 16:00 **B. Darquié**, France, “New perspectives on the search of a parity violation effect in chiral molecules” (could be moved to Spectroscopy)

*16:00-16:30 Coffee Break*

## Round Table “Optical magnetometry”

16:30 – 17:00 *Opening Talk:* **A. Weis**, Switzerland, “New trends in atomic magnetometry and its applications”

17:00 – 17:15 **V. Yudin**, Russia, “Vector magnetometer based on EIT resonances in linearly polarized light”

17:15 – 17:35 **J. Kitching**, USA, “Chip-scale atomic magnetometers for biomagnetics and NMR”

17:35 – 17:55 **V. Velichansky**, Russia, “Laser pumped magnetometers”

17:55 – 18:15 **A. Vershovsky**, Russia, “New magnetometric methods using “classical” quantum optical sensors”

18:15 – 18:30 **E. Breschi**, Switzerland, “Atomic magnetometry based on coherent population trapping effect excited with polarization modulated light”

18:30 – 19:30 Discussions within Round Table

19:30 – 22:00 Symposium Dinner

## Thursday 29 August

### Session 14 Nanophotonics, plasmonics, metamaterials and complex media II

09:30 – 10:00 **E. Vinogradov**, Russia, “Coherent spontaneous emission of light by solids”

10:00 – 10:30 **V. Haisler**, Russia, “Semiconductor vertical-cavity lasers and single photon emitters” (could be moved to Quantum Optics)

10:30 – 11:00 **A. Plekhanov**, Russia, “Plasmonic nanolaser”

*11:00 – 11:30 Coffee Break*

### Session 15 Applications of lasers in nanotechnologies, biomedicine and other fields II

11:30 – 11:45 **A. Razhev**, Russia, “Development and creation of pulsed UV lasers for medical applications in ophthalmology”

11:45 – 12:15 **X. Lin**, China, “High-power all-solid-state laser and its applications”

12:15 – 12:45 **A. Manshina**, Russia, “Laser-induced synthesis in liquids, solids and liquid/solid interfaces”

*12:45 – 13:00 Closing remarks*

*13:00 – 14:00 Lunch*

*14:00 – 16:00 Excursions to Institutes of SB RAS*

*Revised on 31 July by Alexey Taichenachev & Denis Brazhnikov*