EXHILP 2019

TUESDAY (SEP 3)

8:00	**Registration**
8:30	**Welcome**

Strong-field QED (SFQED) Theory Session Chair:

8:45	**Antonino Di Piazza** (Max-Planck-Institut für Kernphysik) *Theory of Strong-Field QED in Intense Laser Fields*
9:45	**Break**
10:00	**Ben King** (University of Plymouth) *Improved local approximation for nonlinear Breit-Wheeler pair creation and short pulse effects on photon polarisation in nonlinear Compton scattering*
10:20	**Tom Blackburn** (University of Gothenburg) *Benchmarking and Improving Semiclassical Approaches to Strong-Field QED*
10:40	**Alexander Macleod** (University of Plymouth) *Two particle scattering in strong-field QED*
10:55	**Erez Raicher** (Max-Planck-Institut für Kernphysik) *Momentum-dependent effective mass in a rotating electric field*
11:10	**Break**
11:25	**Felix Mackenroth** (Max-Planck-Institut für Physik komplexer Systeme) *Nonlinear Compton scattering of an ultraintense laser pulse in a plasma*
11:45	**Daniel Seipt** (University of Michigan) *Ultrafast Polarization of an Electron Beam in an Intense Bi-chromatic Laser Field*
12:05	**Yue-Yue Chen** (Max-Planck-Institut für Kernphysik) *Polarized positron beams via intense two-color laser pulses*
12:20	**Lunch**

Laser-based SFQED Experiments Chair:

14:00	**Stuart Mangles** (Imperial College London) *Exploring QED in laser-plasma experiments*
14:45	**Break**
15:00	**Qiang Chen** (Nebraska-Lincoln) *Extremely high-order multiphoton Thomson scattering*
15:20	**Chang Hee Nam** (Institute for Basic Science) *Experimental Approach for strong field QED processes with a multi-PW Laser*
15:40	**Georg Korn** (ELI Beamlines) *High intensity lasers and high field program at ELI Beamlines*
16:00	**Posters & Light Dinner**

WEDNESDAY (SEP 4)

8:30	**Coffee and Snacks**

Numerical Simulations (QED-PIC and related) Chair:

8:45	**Mattias Marklund** (Chalmers University of Technology) *Simulations of strong field-matter interactions*
9:30	**Break**
9:50	**Mickael Grech** (École Polytechnique) *Recent developments around the Apollon laser & SMILEI projects*
10:10	**David Burton** (Lancaster University) *Quantum Backreaction in Laser-Driven Plasma*
10:25	**Robbie Watt** (Imperial College London) *Numerical Modelling of Breit-Wheeler Detection Experiments*
10:40	**Yutong He** (University of California, San Diego) *Enhanced gamma-ray emission in structured targets irradiated by counter-propagating laser pulses*
10:55	**Break**
11:15	**Martin Jirka** (ELI-Beamlines/Czech Technical University in Prague) *Direct laser acceleration in radiation-dominated regime*
11:30	**Evgeny Gelfer** (ELI Beamlines) *Radiation Induced Acceleration of Ions*

Crystal-based SFQED Experiments Chair:

11:45	**Ulrik Uggerhøj** (Aarhus) *Testing radiation reaction by means of GeV e± in crystals*
12:05	**Tobias Wistisen** (Max-Planck-Institut für Kernphysik) *Quantum radiation reaction beyond the local constant field approximation*
12:20	**Lunch**

Beam-Beam Interactions (future linear collider) Chair:

14:00	**Michael Peskin** (SLAC/Stanford) *Extreme Fields and Lasers for Elementary Particle Physics*
14:45	**Break**
15:00	**Vitaly Yakimenko** (SLAC/Stanford) *Concept for a Fully Non-perturbative QED Collider*
15:20	**Fabrizio Del Gaudio** (Técnico Lisboa) *Bright γ rays source and nonlinear Breit-Wheeler pairs in the collision of high density particle beams*
15:40	**Dario Del Sorbo** (SLAC National Accelerator Laboratory) *Probing electron-positron QED cascades in the collision of tightly focused lepton beams*
16:00	**Break**

LINAC/XFEL-based SFQED Experiments Chair:

16:20	**Claudio Pellegrini** (UCLA/SLAC) *Very Large Power density and High Field QED with X-ray FELs*
16:40	**Ishay Pomerantz** (Tel Aviv University) *The LUXE Experiment: probing strong-field QED at the EU.XFEL*
16:55	**Sebastian Meuren** (SLAC/Stanford) *Probing Strong-field QED at FACET-II (SLAC E-320)*

THURSDAY (SEP 5)

8:30	**Coffee and Snacks**

Strong Fields in Astrophysics — Chair:

8:45	**Roger Blandford** (KIPAC/SLAC) *Cosmic Laboratories*
9:45	**Break**
10:05	**Andrei Beloborodov** (Columbia) *Magnetic Energy Release in Magnetars*
10:25	**Alexander Chen** (Princeton University) *Self-consistent Global Simulations of Pair Discharge in Neutron Star Magnetospheres*
10:45	**Break**

Light-Light Interaction (Euler-Heisenberg and related) — Chair:

10:55	**Felix Karbstein** (Helmholtz-Institut Jena) *All-optical probes of vacuum polarization effects*
11:40	**Break**
12:00	**Adam Noble** (University of Strathclyde) *Cherenkov Radiation from the Quantum Vacuum*
12:20	**Hedvika Kadlecova** (ELI–Beamlines) *Born–Infeld electromagnetic shock waves in the Quantum Vacuum*
12:35	**Wendell Hill, III** (University of Maryland) *Precision measurements of the quantum vacuum at the petawatt level*
12:50	**Lunch**

Schwinger Pair Production — Chair:

14:30	**Ralf Schützhold** (Helmholtz-Zentrum Dresden-Rossendorf) *Dynamically assisted tunneling: from the Sauter-Schwinger effect to nuclear fusion*
14:50	**Chul Min Kim** (Center for Relativistic Laser Science) *Phase-integral Formulation of Dynamically Assisted Schwinger Pair Production*
15:05	**Greger Torgrimsson** (Friedrich-Schiller-Universität Jena) *Perturbative approach to nonperturbative pair production*
15:20	**Christian Kohlfürst** (Helmholtz-Zentrum Dresden-Rossendorf) *Spin-states in multiphoton pair production for circularly polarized light*
15:35	**Break**
15:55	**Tae Moon Jeong** (ELI-Beamlines) *Spherically-focused Ultrastrong Electromagnetic Field for Electron-Positron Pair Production*
16:10	**Charles Su** (Illinois State University) *Optimal supercritical potentials for the electron-positron pair-creation rate*
16:25	**Christian Schubert** (Universidad Autónoma del Estado de México) *Fermionic Schwinger pair creation*
16:40	**Break**

Community Activities — Chair:

16:55	**Phil Bucksbaum** (SLAC/Stanford) *Building the SFQED community*
17:10	**Stepan Bulanov** (BELLA/Berkeley) *Physics of plasmas in extreme fields*
18:00	**Barbecue**

FRIDAY (SEP 6)

8:30	**Coffee and Snacks**

Wakefield Acceleration and Future Facilities — Chair:

8:45	**Eric Esarey** (Lawrence Berkeley National Laboratory) *High Intensity Laser Experiments at the BELLA Center*
9:05	**Mark Hogan** (SLAC/Stanford) *Plasma Wakefield Acceleration and Extreme Beams at FACET-II*
9:25	**James Koga** (Kansai Photon Science Institute) *Using Relativistic Flying Mirrors for High Field Science*
9:45	**Break**
10:00	**Liangliang Ji** (Shanghai Institute of Optics and Fine Mechanics) *Relativistic polarized electron generation via plasma wakefield acceleration*
10:15	**Hans Rinderknecht** (University of Rochester) *Frontiers in physics enabled by EP OPAL: a multibeam ultra-intense laser user facility*

Numerical Approaches (Lattice QED and related) — Chair:

10:30	**Yuan Shi** (Lawrence Livermore National Laboratory) *What can we learn from solving classical field equations?*
10:45	**Qingzheng Lyu** (Max-Planck-Institut für Kernphysik) *The Computational-QFT Approach in QED Processes with Strong Laser Fields*
11:00	**Break**

Beyond Standard Model Physics — Chair:

11:15	**Ou Labun** (University of Texas, Austin) *Toward BSM physics with lasers: precision modeling and statistical methods for theory-experiment comparison*
11:30	**Lance Labun** (University of Texas, Austin) *What do we need to discover the Unruh effect in laser experiment?*
11:45	**Hartmut Ruhl** (Ludwig-Maximilians-University of Munich) *2D spacetime manifolds, radiation reaction, emergent inertia*
12:00	**Summary**
12:30	**Lunch**

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