

Monday, 26 September

08:45 - 09:00

Frank Jülicher (director of the MIPPKS) & scientific coordinators

Opening

chair: Antonino Di Piazza

09:00 - 09:45

Christoph H. Keitel

(MPI for Nuclear Physics Heidelberg)

Extreme-field QED with electron beams, relativistic quantum plasmas and strong laser pulses

09:45 - 10:30

Katarzyna Krajewska (University of Warsaw)
Sauter-Schwinger process from the Feynman's perspective: vortex structures and polarization effects

10:30 - 11:00

Coffee break

chair: Christoph H. Keitel

11:00 - 11:45

Mickael Grech

(Centre National de la Recherche Scientifique)

Toward nonlinear Breit-Wheeler pair production from pure light collision at Apollon

11:45 - 12:30

Nina Elkina (Helmholtz-Zentrum Dresden-Rossendorf)

A virtual HPC playground for development of QED plasma codes

12:30 - 13:30

Lunch break

13:30 - 14:30

Informal discussions

chair: Martin Formanek

- 14:30 - 15:00 **Alina Golub**
(Heinrich-Heine-Universität Düsseldorf)
The role of laser focusing in nonlinear Breit-Wheeler pair production from collisions of bremsstrahlung gamma quanta and a tightly focused laser pulse
- 15:00 - 15:30 **Alexander J. Macleod** (ELI Beamlines Prague)
All-optical nonlinear Breit-Wheeler pair production with high-power lasers
- 15:30 - 16:00 **Alexandra Eckey**
(Heinrich-Heine-Universität Düsseldorf)
Strong-field Breit-Wheeler pair production with bremsstrahlung gamma-rays in the perturbative-to-nonperturbative-transition regime
- 16:00 - 16:30 Coffee break

chair: Daniel Seipt
- 16:30 - 17:00 **Christian Kohlfürst**
(Helmholtz-Zentrum Dresden Rossendorf)
Colliding laser pulses: From Sauter-Schwinger to Breit-Wheeler
- 17:00 - 17:30 **Naser Ahmadiiaz**
(Helmholtz-Zentrum Dresden-Rossendorf)
Generalized Gelfand-Dikii equation and solitonic electric fields for fermionic Schwinger pair production
- 17:30 - 18:00 **Felipe Cezar Salgado** (Helmholtz Institute Jena & Friedrich-Schiller-Universität Jena)
Pair Production in the non-perturbative regime at CALA
- 18:00 - 19:30 Welcome dinner & informal discussions

Tuesday, 27 September

chair: Petru Ghenuche

09:00 - 09:45

Matt Zepf (Helmholtz Institute Jena)
Strong Field QED Experiments with High Intensity Lasers

09:45 - 10:30

Liangliang Ji (virtual)
(Chinese Academy of Sciences Shanghai)
Extreme field physics and the 10/100 PW lasers at SIOM

10:30 - 11:00

Coffee break

chair: Matt Zepf

11:00 - 11:45

Petru Ghenuche
(Light Infrastructure - Nuclear Physics (ELI-NP))
Preparing for 10-PW laser experiments

11:45 - 12:30

Alejandro Laso García
(Helmholtz-Zentrum Dresden-Rossendorf)
Towards high-field experiments in existing and upcoming laser facilities

12:30 - 13:30

Lunch break

13:30 - 14:30

Informal discussions

chair: Arkady Gonoskov

14:30 - 15:00

Haidar Al-Naseri (Umeå University)
Collective plasma effects and Schwinger pair creation

- 15:00 - 15:30 **Shikha Bhadoria** (University of Gothenburg)
Energy enhancement of laser-driven ions by radiation reaction and Breit-Wheeler pair production in the ultra-relativistic Breakout Afterburner regime
- 15:30 - 16:00 **Daniil Ryndyk**
(Helmholtz-Zentrum Dresden-Rossendorf)
Dynamically assisted nuclear fusion
- 16:00 - 16:30 Coffee break

chair: Mickael Grech
- 16:30 - 17:00 **Daniel Seipt** (Helmholtz Institute Jena)
Spin and Polarization in High-Intensity Laser-Plasma Interactions
- 17:00 - 17:30 **Lars Reichwein**
(Heinrich-Heine-Universität Düsseldorf)
Spin-polarized ion beams from foil-gas composite targets
- 17:30 - 18:00 Discussions
- 18:00 - 19:00 Dinner
- 19:00 - 20:00 Informal discussions

Wednesday, 28 September

chair: Sergei Bulanov

09:00 - 09:45

J. Tito Mendonca (University of Lisbon)
Temporal processes in Laser QED

09:45 - 10:30

Evgeny Gelfer (ELI Beamlines Dolni Brezany)
Collective effects in nonlinear Thomson scattering

10:30 - 11:00

Coffee break

chair: Elias Gerstmayr

11:00 - 11:45

Mohammad Mirzaie
(Center for Relativistic Laser Science (CoReLS))
Exploring strong-field QED via Compton scattering between a multi-GeV electron beam and an ultraintense laser pulse

11:45 - 12:30

Zheng Gong
(MPI for Nuclear Physics Heidelberg)
Deciphering electron acceleration dynamics of ultrarelativistic plasma via polarization pattern of emitted gamma-photons

12:30 - 13:30

Lunch break

13:30

departure by chartered bus from the MPIPKS to the Saxon Switzerland (meeting point: reception in the main building)

- 14:30 - 19:30 guided hiking tour of the Pfaffenstein incl.
workshop dinner at the Berggaststätte Pfaffen-
stein
- 19:30 return transfer by chartered bus to Dresden

Thursday, 29 September

chair: Naser Ahmadiniaz

09:00 - 09:45

Stepan Bulanov

(Lawrence Berkeley National Laboratory)
SF QED effects and plasma based collider for high energy physics studies

09:45 - 10:30

Marija Vranic (virtual) (University of Lisbon)

Positron creation and acceleration with intense lasers

10:30 - 11:00

Coffee break

chair: J. Tito Mendonca

11:00 - 11:45

Uwe Hernandez Acosta

(Helmholtz-Zentrum Dresden-Rossendorf)
First steps in QED cascades - the onset stage

11:45 - 12:30

Sergei Bulanov (ELI Beamlines Dolni Brezany)

Nonlinear Electromagnetic Waves in Quantum Vacuum

12:30 - 13:30

Lunch break

13:30 - 14:30

Informal discussions

chair: Zheng Gong

14:30 - 15:00

Elias Gerstmayr (Queen's University Belfast and

SLAC National Laboratory)
Strong-field QED experiments at FACET-II (E320)

- 15:00 - 15:30 **Christoffer Olofsson** (University of Gothenburg)
Concepts for studying strong-field QED using laser-electron colliders
- 15:30 - 16:00 **Anthony Mercuri-Baron** (Sorbonne Université)
Impact of field configurations for QED cascade development in counter-propagating Laguerre-Gauss beams
- 16:00 - 16:30 Coffee break

chair: Nina Elkina
- 16:30 - 17:00 **Felix Karbstein** (Helmholtz Institute Jena)
All-optical signatures of quantum vacuum nonlinearities in laser fields
- 17:00 - 17:30 **Arseny Mironov** (Sorbonne Université)
Photon emission in a fully non-perturbative regime of strong-field QED
- 17:30 - 18:15 **Alexey Arefiev (virtual)**
(University of California, San Diego)
Achieving pair creation via photon-photon collisions in dense laser-irradiated plasmas
- 18:15 - 19:15 Dinner
- 19:15 - 20:00 Informal discussions

Friday, 30 September

chair: Christian Kohlfürst

09:00 - 09:45

Martin Formanek

(ELI Beamlines Prague)

Interaction of charged particles with Flying Focus pulses

09:45 - 10:30

Arkady Gonoskov

(University of Gothenburg)

Prospects for studying extreme regimes of radiation reaction with electron-light colliders

10:30 - 11:00

Coffee break

chair: Stepan Bulanov

11:00 - 11:30

Deepak Sah (virtual) (Raja Ramanna Centre for Advanced Technology Indore)

Pair Production in time-dependent Electric field at Finite times

11:30 - 12:15

Matteo Tamburini (virtual)

(MPI for Nuclear Physics Heidelberg)

SFQEDtoolkit: a high-performance library for the accurate modeling of strong-field QED processes in PIC and Monte Carlo codes

12:15 - 12:30

Closing

12:30 - 13:30

Lunch break

13:30 - 15:00

Informal discussions & departure