MAX PLANCK GESELLSCHAFT

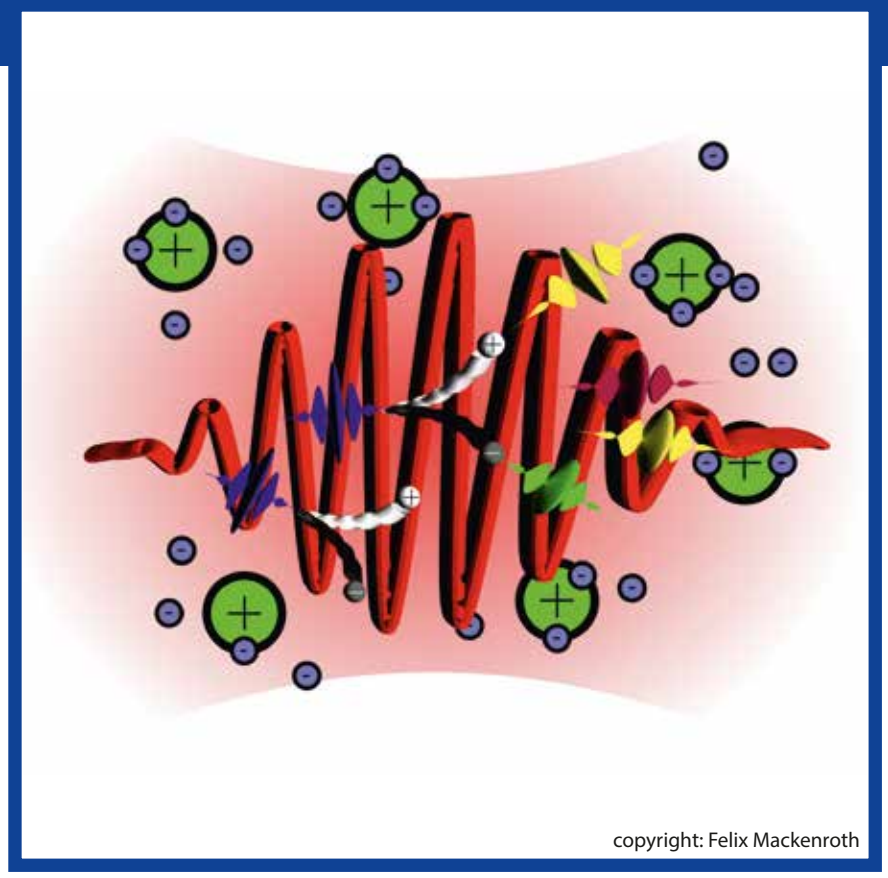
mpipks

QED Laser Plasmas

Max Planck Institute for the Physics of Complex Systems

International Workshop
26 - 30 September 2022

Ultra-intense lasers are indispensable tools for fundamental and applied research. They can ionize matter, excite collective effects, accelerate particles to relativistic energies and drive non-linear quantum effects. The aim of this workshop is to bring together laser-plasma theorists and experimentalists with nonperturbative quantum field theorists, to explore the rapidly growing new field of non-linear relativistic multi-particle quantum dynamics.



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Topics:

- How do nonlinear relativistic quantum dynamics affect ultra-intense laser-plasma interactions?
- How do multi-particle plasma effects affect non-linear relativistic quantum dynamics?
- In what parameter regimes do incoherent models of nonperturbative QED have to be amended?
- What simplified models can include plasma dynamics in nonperturbative QED calculations?
- Which experimental tests can explore relativistic quantum plasmas?
- What novel phenomenology can be triggered by multi-particle relativistic quantum dynamics?
- How can a multi-particle relativistic quantum framework be developed?

Invited speakers:
(*to be confirmed)

A. V. Arefiev (US)*
S. S. Bulanov (US)
S. V. Bulanov (CZ)
N. Elkina (DE)
P. Ghenuche (RO)*
A. Gonoskov (SE)*
M. Grech (FR)
K. Z. Hatsagortsyan (DE)*
C. H. Keitel (DE)
J. G. Kirk (DE)*
K. Krajewska (PL)*
J. T. Mendonca (PT)
H. Ruhl (DE)
T. Toncian (DE)*
M. Vranic (PT)*
S. Weber (CZ)*
M. Zepf (DE)

Scientific coordinators:
Antonino Di Piazza,
Heidelberg, Germany

Stuart Mangles,
London, UK

Mattias Marklund,
Gothenburg, Sweden

Organisation:
Maria Voigt
MPIPKS Dresden

Applications received before 30th June 2022 are considered preferentially.

We plan for an **in person workshop** with all participants on-site. The number of attendees is limited.

The registration fee is 140 Euro and should be paid by all participants; costs for accommodation and meals will be covered by the Max Planck Institute.

Limited funding is available to partially cover travel expenses.

For further information please contact:
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We also offer individual fellowships (phd, postdoc, sabbatical). Applications are accepted continuously. For details, please check www.pks.mpg.de/visitors