



# Theory and Simulation of Photon-Matter Interaction

The European Cluster of Advanced Laser Light Sources (EUCALL) invites you to participate in the **Joint Foresight Topical Workshop:**

**“Theory and Simulation of Photon-Matter Interaction”** at ELI-ALPS, July 1-6 2018.

This workshop sets the stage to define, explore, and tackle challenges that current and future light sources pose to theoretical research and numerical simulations of matter in extreme fields of **optical lasers**, **free-electron lasers** and 3rd and 4th generation **synchrotron sources**.

It brings together the experts and young researchers from a broad range of disciplines including:

- **Atoms, molecules, and clusters in intense radiation fields**
- **Warm Dense Matter creation and diagnostics**
- **High energy density matter**
- **Strong field physics**
- **Non-equilibrium dynamics**
- **Laboratory astrophysics**

Keynote lectures given by world leading senior scientists will be complemented by young researchers' presentations highlighting the most recent advances in the field. Ample time for discussion and informal meetings provides the ground for strengthening existing partnerships and creation of new collaborations and joint research projects.



$$\mathcal{L} = \bar{\psi} (i\hbar c \gamma^\mu \partial_\mu - mc^2) \psi - \frac{\epsilon_0 c^2}{4} F_{\mu\nu} F^{\mu\nu} + e j_\mu A^\mu$$



## International Workshop: 1 – 6 July 2018 at ELI-ALPS, Szeged, Hungary

Workshop website: <http://indico.desy.de/indico/e/eucall-theory>

Registration open: 19 March – 1 June

- Places are limited to approximately 100
- Registration is **free**
- **Young Researcher Travel Bursaries** are available for this event. Further information at [www.eucall.eu/bursaries/eucall\\_theory](http://www.eucall.eu/bursaries/eucall_theory)



Local Organizers:

- **David Miklos Bereczkei** (ELI-ALPS)
- **Graham Appleby** (European XFEL)
- **Federico Canova** (ELI-DC)

Scientific Program Committee :

- **Carsten Fortmann-Grote** (European XFEL)
- **Michael Bussmann** (Helmholtz-Zentrum Dresden-Rossendorf)

Invited speakers:

- **Michael Bonitz** (Christian-Albrechts University, Kiel)
- **Ronald Redmer** (Rostock University)
- **Gianluca Gregori** (Oxford University)
- **Thomas Fennel** (Rostock University)
- **Stefan Hau-Riege** (Lawrence Livermore National Laboratory)
- **Harry Quiney** (University of Melbourne)
- **Antonino Di Piazza** (Max-Planck Institut f. Kernphysik, Heidelberg)
- **Alexander Andreev** (ELI-ALPS)

EUCALL is a network between leading large-scale user facilities for free-electron laser, synchrotron and optical laser radiation and their users. Under EUCALL, they work together on their common methodologies and research opportunities, and develop tools to sustain this interaction in the future.

[www.eucall.eu](http://www.eucall.eu) / [contact@eucall.eu](mailto:contact@eucall.eu)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654220

