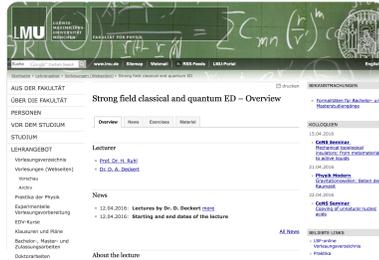


Strong Field Classical and Quantum Electrodynamics

Website:

http://www.physik.uni-muenchen.de/lehre/vorlesungen/sose_16/strong_field_quantum_electrodynamics/



Credits & Exercises:

ECTS credit points can be collected by attending the lecture courses and exercises.

Time & Location of the exercises?

Rough Roadmap:

1. QED: Its state and its problems
2. From QED to classical electrodynamics of point-charges
3. Electrodynamical vacuum

Physics part:

The Liouville equation
The classical BBGKY hierarchy
The von Neumann equation
The quantum BBGKY hierarchy
Quantum transport theory
Relativistic quantum transport theory
The Heisenberg-Euler Lagrangian
Nonlinear wave equations

Mathematics part:

Missing equations of motion in QED
Origin of UV, IR divergences
The classical Maxwell-Lorentz system
Radiation reaction, ALD and LL equation
Construction of the time-evolution
for external field QED
Polarization of the vacuum

