

Theoretical Physics 6a - SS 2019

Relativistic Quantum Field Theory

Lecturers :

Dr. Igor Danilkin (danilkin@uni-mainz.de)

Prof. Dr. Marc Vanderhaeghen (vandma00@uni-mainz.de)

Main assistant :

Matthias Heller (maheller@students.uni-mainz.de)

Website

<https://wwwth.kph.uni-mainz.de/theoretische-physik-6a-relativistische-quantenfeldtheorie/>

Lecture hours

Mo 10:00 - 12:00, Wed 10:00 - 12:00

(Minkowski room)

Overview

1. The Klein-Gordon Field
2. The Dirac Field
3. The Photon Field, Abelian Gauge Theory
4. Interacting Fields and Feynman Diagrams
5. QED processes in lowest order
6. Renormalization of Quantum Electrodynamics
7. Introduction to Functional Methods and Path Integrals

Literature

1. F. Mandl and G. Shaw
Quantum Field Theory
(Wiley, 2010)
2. M.E. Peskin, D.V. Schroeder
An Introduction to Quantum Field Theory
(Westview Press, 1995)
3. M. Srednicki
Quantum Field Theory
(Cambridge University Press, 2006)
4. Matthew D, Schwartz
Quantum Field Theory and the Standard Model
(Cambridge University Press, 2014)