

Theoretical Physics 5 - WS 2024/2025

Advanced Quantum Mechanics

Lecturers :

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Website

<https://wwwth.kph.uni-mainz.de/theoretical-physics-5-advanced-quantum-mechanics/>

Lecture hours

Mo 10:00 - 12:00, Wed 10:00 - 12:00
(Lorentz room)

Klausur

20/02/2025, 9:00 - 12:00

Overview

1. Non-relativistic Quantum Theory of Many-Particle Systems
21.10, 23.10, 28.10, 30.10, 04.11, 06.11
2. Relativistic Bosons : Klein-Gordon Theory
11.11, 13.11, 18.11
3. Relativistic Fermions : Dirac Theory
20.11, 25.11, 27.11, 02.12, 04.12, 09.12, 11.12, 16.12, 18.12
4. Path Integral Quantization
06.01, 08.01, 13.01, 15.01
5. Quantum Theory of Radiation and Interaction with Matter (non-relativistic)
20.01, 22.01, 27.01, 29.01, 03.02
6. Review
05.02

Literature

1. A. Fetter and J.D. Walecka :
Quantum theory of many-particle systems
(McGraw-Hill)
2. J.J. Sakurai :
Modern Quantum Mechanics
(AddisonWesley)
3. F. Mandl and G. Shaw :
Quantum Field Theory
(Wiley)
4. M.E. Peskin, D.V. Schroeder :
An Introduction to Quantum FieldTheory
(Westview)