

# Theoretical Physics 5 - WS 2021/22

## Advanced Quantum Mechanics

Lecturers :

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**Website**

*<https://wwwth.kph.uni-mainz.de/theorie5-ws2122/>*

**Lecture hours**

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

(Lorentz room)

# Overview

1. Non-relativistic Quantum Theory of Many-Particle Systems
2. Relativistic Bosons : Klein-Gordon Theory
3. Relativistic Fermions : Dirac Theory
4. Quantum Theory of Radiation and Interaction with Matter (non-relativistic)
5. Path Integral Quantization

# 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)