

# General Theory of Relativity / Quantum Field Theory and Solid State Theory / Computational Physics

Module No.: MN-P-SP-GR-QFT, MN-P-SP-ThSol, MN-PN-GR-QFT, MN-PN- ThSol, MN-PN-WaMa

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## Course: Quantum Field Theory II

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Category	Type	Language	Teaching Hours	CP	Semester
Core Course (GR-QFT)	Lecture	English	4+2	9	
Specialized Course (ThSol)					

### Requirements for participation:

Quantum Field Theory I

### Type of module examinations:

Written or oral examination and one oral examination at the end of the module

### Duration of the course:

1 semester

### Aims of the course:

Quantum field theory is one of the main tools of modern physics with many applications ranging from high-energy physics to solid state physics. A central topic of this course is the concept of spontaneous symmetry breaking and its relevance for phenomena like superconductivity, magnetism or mass generation in particle physics.

### Contents of the course:

- Correlation functions: formalism, and their role as a bridge between theory and experiment
- Renormalization
- Topological concepts

### Recommended literature:

A. Altland and B.D. Simons, Condensed Matter Field Theory (Cambridge University Press, Cambridge, second edition: 2010)