

**Modules:**

physics700 **Elective Advanced Lectures**  
 physics730 **Theoretical Physics**

**Course:****Quantum Field Theory II (T)**

Course No.:

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	4+2	8	ST

**Requirements:****Preparation:**

Quantum Field Theory I

**Form of Testing and Examination:**

Written or oral examination

**Length of 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)