

<b>Module Name</b> Quantum Field Theory I						
<b>Type of Module</b> Advanced Module				<b>Module Code</b> AM-QFT1		
<b>Identification Number</b>	<b>Workload</b>	<b>Credit Points</b>	<b>Term</b>	<b>Offered Every</b>	<b>Start</b>	<b>Duration</b>
MN-CS-QFT1	270 Hours	9 CP	1. – 3. Semester	SuSe	Summer Term Only	1 Semester
<b>1</b>	<b>Course Types</b>		<b>Contact Time</b>		<b>Private Study</b>	
	a) Lecture		60 h		90 h	
	b) Problem Class		30 h		90 h	
<b>2</b>	<b>Module Objectives and Skills to be Acquired</b>					
	Methods of quantum field theory are in use in almost all areas of modern physics. Strongly oriented towards applications, this course offers an introduction based on examples and phenomena taken from the area of solid state physics.					
<b>3</b>	<b>Module Content</b>					
	<ul style="list-style-type: none"> <li>- Second quantization and applications</li> <li>- Functional integrals</li> <li>- Perturbation theory</li> <li>- Mean-field methods</li> </ul>					
<b>4</b>	<b>Teaching Methods</b>					
	The module consists of a lecture course, supplemented by a problem class.					
<b>5</b>	<b>Prerequisites (for the Module)</b>					
	Formally: none Regarding the Contents: Training in theoretical physics at the B.Sc. level					
<b>6</b>	<b>Type of Examination</b>					
	Written or oral examination					
<b>7</b>	<b>Credits Awarded</b>					
	The module is passed by passing the examination. The grade given for the module is equal to the grade of the examination.					
<b>8</b>	<b>Compatibility with other Curricula</b>					
	The module is part of the Master of Science in Physics.					
<b>9</b>	<b>Proportion of Final Grade</b>					
	9/114					
<b>10</b>	<b>Module Coordinator</b>					
	A. Altland, A. Rosch, M. Zirnbauer					

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**Further Information**

Literature:

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