

<b>Module Name</b> Solid State Theory						
<b>Type of Module</b> Advanced Module				<b>Module Code</b> AM-SolState		
<b>Identification Number</b> MN-CS-SolState	<b>Workload</b> 180 Hours	<b>Credit Points</b> 6 CP	<b>Term</b> 1. – 3. Semester	<b>Offered Every</b> WiSe	<b>Start</b> Winter Term Only	<b>Duration</b> 1 Semester
<b>1</b>	<b>Course Types</b> a) Lecture b) Problem Class		<b>Contact Time</b> 45 h 15 h	<b>Private Study</b> 60 h 60 h	<b>Planned Group Size</b> Students	
<b>2</b>	<b>Module Objectives and Skills to be Acquired</b> This course gives an introduction to the physics of electrons and phonons in solids together with theoretical concepts and techniques as applied to these systems.					
<b>3</b>	<b>Module Content</b> The physics of solids shows an extremely rich phenomenology. Starting from a quantum theory describing the electrons and atoms in a solid, we investigate, for example, how excitations and associated quasi particles emerge. The lecture covers a broad range of methods and applications with emphasis on experimental and theoretical research directions of the physics department in Cologne.					
<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, experimental solid state physics					
<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> 6/114					
<b>10</b>	<b>Module Coordinator</b> A. Rosch, R. Bulla, S. Trebst					
<b>11</b>	<b>Further Information</b> Literature: Ashcroft/ Mermin: "Solid State Physics"					

