


<b>Module:</b>	<b>Elective Advanced Lectures: Theoretical Physics</b>
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Module No.: physics70c

<b>Course:</b>	 universität <b>bonn</b>	<b>Computational Methods in Condensed Matter Theory (T)</b>
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Course No.: physics767

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	3+2	7	WT/ST

**Requirements for Participation:**

**Preparation:**

Quantum Field Theory (physics755)  
 Advanced Theoretical Physics (physics607) / Advanced Quantum Field Theory (physics7501)  
 Advanced Theoretical Condensed Matter Physics (physics638)

**Form of Testing and Examination:**

Active participation in exercises, written examination

**Length of Course:**

1 semester

**Aims of the Course:**

Detailed discussion of computational tools in modern condensed matter theory

**Contents of the Course:**

Exact Diagonalization (ED)  
 Quantum Monte Carlo (QMC)  
 (Stochastic) Series expansion (SSE)  
 Density Matrix Renormalization (DMRG)  
 Dynamical Mean Field theory (DMFT)

**Recommended Literature:**

will be given in the lecture