

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

**Course:**  **Group Theory (T)**

**Course No.:** physics751

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

**Requirements:**

**Preparation:**

physik421 (Quantum Mechanics)

**Form of Testing and Examination:**

Requirements for the examination (written): successful work with the

**Length of Course:**

1 semester

**Aims of the Course:**

Acquisition of mathematical foundations of group theory with regard to applications in theoretical physics

**Contents of the Course:**

Mathematical foundations:

Finite groups, Lie groups and Lie algebras, highest weight representations, classification of simple Lie algebras, Dynkin diagrams, tensor products and Young tableaux, spinors, Clifford algebras, Lie super algebras

**Recommended Literature:**

B. G. Wybourne; Classical Groups for Physicists (J. Wiley & Sons 1974)  
H. Georgi; Lie Algebras in Particle Physics (Perseus Books 2. Aufl. 1999)  
W. Fulton, J. Harris; Representation Theory (Springer, New York 1991)