

PHYSICS 5300-034,

Group Theory in Physics (Fall 2008)

Schedule: MWF, 2:00-2:50 in Sci 010

Instructor: Mahdi Sanati
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Office and office hours: Sci 46, open door policy

Course Objectives: This is a course for graduate and advanced undergraduate students in physics. It is also open to interested students in chemistry, mathematics, and other fields. The purpose of the course is to introduce students to some basic group theory ideas widely used in physics and chemistry.

Expected Learning Outcomes: Students will develop the ability to apply group theory to wide range of physical problems.

Text: “Elements of Group Theory for Physicists” by A. W. Joshi, 4th Edition, New Age International Publishing, available online at firststandsecond.com or amazon.com We will follow the material from the textbook rather closely, but departures from it occur. Therefore, I encourage you to take notes.

Coverage: fundamentals of group theory, representations of finite and continuous groups, group theory in quantum mechanics, crystallographic and molecular symmetries, group theory in solid state physics, and selected additional applications

Assignments and Grades: homework assignment (75%), special project (25%). For the project you are free to choose a subject relevant to your field of research or interest. However, the subject has to be approved by the instructor first.

Grades: 100-A-88, 87.9-B-76, 75.9-C-64, 63.9-D-50, 49.9-F-0

Attendance: Required, except for excused emergencies. Each recorded absence counts as -5% and will be deducted from the course total.

Any person who, because of a disabling condition may require some special arrangements in order to meet course requirements should contact the instructor as soon as possible, so that necessary accommodation can be made. Proper documentation must be presented from the Dean of Students' Office.