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### PHYS 452.01: Quantum Physics of the Atom

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# PHYSICS 452 - Quantum Physics of the Atom

## Autumn Semester 2000

- LECTURES: Mon., Wed., and Fri. 2:10 - 3:00 PM  
SC Bldg. Rm 230
- INSTRUCTOR: Eijiro (Ebo) Uchimoto  
Office: SC Bldg. Rm 130 (Tel. No. 243-6223)  
E-mail address: uchimoto@selway.umt.edu  
Office Hours: Mon. 9-10 AM, Tue. 11 AM - 12 noon,  
Wed. 3 - 4 PM, Thu. 2 - 3 PM,  
Fri. 9 - 10 AM (and by appointment)
- NO. OF CREDITS: 3 credits
- PREREQUISITES: Math 251 and Phys 341.
- TEXTBOOK: Quantum Physics, 2nd ed.,  
by Stephen Gasiorowicz (Wiley, 1996)
- TOPICS: Introduction and the limits of classical physics (Chap. 1)  
Wave packets and uncertainty relations (Chap. 2)  
The Schrodinger wave equation and the probability  
interpretation (Chap. 3)  
Eigenfunctions and eigenvalues (Chap. 4)  
One-dimensional potentials (Chap. 5)  
Operator methods in quantum mechanics (Chap. 8)  
The Shrodinger equation in three dimensions (Chap. 10)  
Angular momentum (Chap. 11)
- EXAMS: Two mid-term exams (Wed. 10/11, Mon. 11/20)  
One final exam (Wed. 12/20)
- GRADING: Problem sets 30 %  
Mid-term exams 40 %  
Final exam 30 %