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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
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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 %