

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYS 439: QUANTUM MECHANICS

LECTURE 1

1.1. THE SCHRÖDINGER EQUATION

1.2. THE WAVEFUNCTION

1.3. THE HAMILTONIAN

1.4. THE ENERGY

1.5. THE PROBABILITY DENSITY

1.6. THE EXPECTED VALUE

1.7. THE UNCERTAINTY PRINCIPLE

1.8. THE TUNNELING EFFECT

1.9. THE PARTICLE IN A BOX

1.10. THE HARMONIC OSCILLATOR

1.11. THE SPIN

1.12. THE ADDITION OF ANGULAR MOMENTUM

1.13. THE HYDROGEN ATOM

1.14. THE HYPERFINE SPLITTING

1.15. THE DIRAC EQUATION

1.16. THE PAULI EXCLUSION PRINCIPLE

1.17. THE FERMI-DIRAC STATISTICS

1.18. THE IDEAL GAS

1.19. THE BLACKBODY RADIATION

1.20. THE PHOTON

1.21. THE COMPTON EFFECT

1.22. THE PHOTOELECTRIC EFFECT

1.23. THE DE BROGLIE WAVELENGTH

1.24. THE TUNNELING EFFECT

1.25. THE QUANTUM TUNNELING