

Midterm

Atom-light interactions

- Semi-classical model: dipole radiation, cross-section, etc ...
- Quantum model: Rabi flopping, dressed atom theory, etc ...
- Spontaneous emission: density matrix, quantum Monte Carlo, etc ...
- Optical dipole traps
- Bloch sphere

Classical theory of optical coherence

- $g^{(1)}(\tau)$, fringe visibility, Wiener-Khintchine, coherence length/time
- $g^{(2)}(\tau)$, Hanbury-Brown and Twiss experiment, bunching, etc ...

Fine and Hyperfine Structure

