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Electromagnetically induced transparency in laser-dressed atoms probed by x rays

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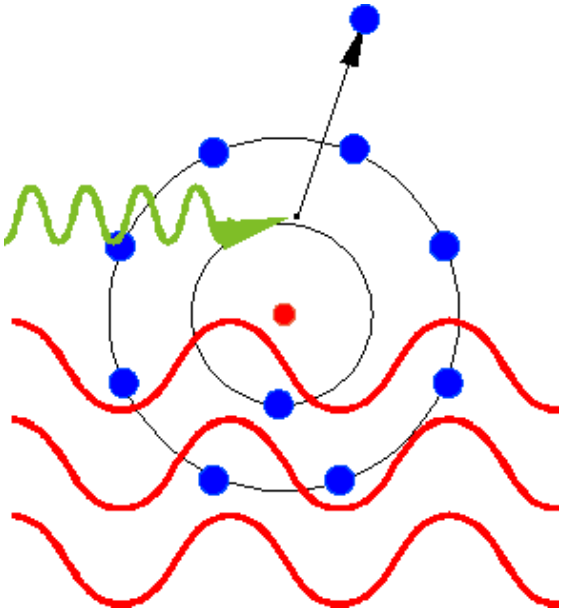
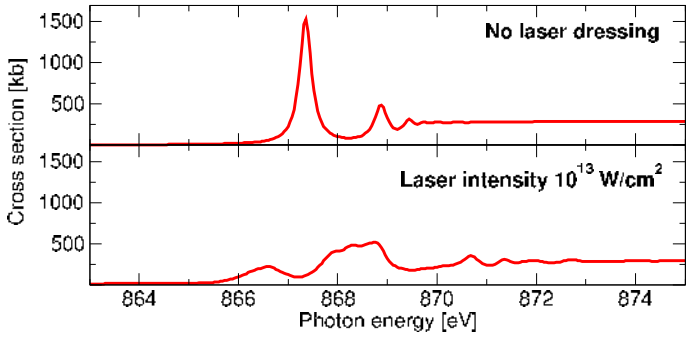
- Atoms in a **laser field**
- Probed by **x rays**
- Rydberg final states are dressed



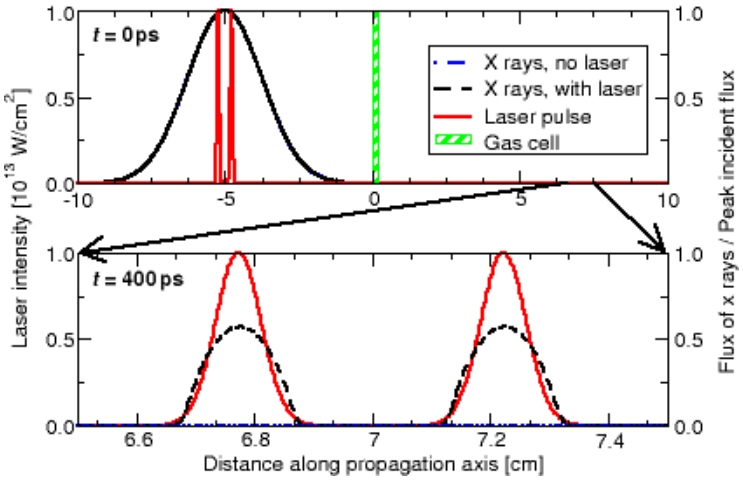
14th Gordon Research Conference on Multiphoton Processes
Tilton School, Tilton, New Hampshire, USA, June 8–13, 2008

Electromagnetically induced transparency (EIT) for x rays

- Neon gas is **opaque** for $\mathrm{Ne\,1s \rightarrow Ne\,3p}$ transition
- Gas becomes **transparent** by laser coupling of $\mathrm{Ne\,3p \rightarrow Ne\,3s}$ transition



- Laser pulse shape is **imprinted** on x rays
- **Femtosecond** x-ray pulses
- All x-ray pump-probe experiments



[Buth, Santra, Young, Phys. Rev. Lett. 98, 253001 (2007)]