



Photo Contest!

- To celebrate the laser's 50th birthday, we want your pictures of a laser in action
- All photos, whether technical or artistic, are welcomed

SEVERAL CASH PRIZES!

TOP PRIZE \$100



HeNe laser by Olivia Walsh

- All questions and submissions may be addressed to

laserfest@physics.wm.edu

submission deadline – April 17, 2010

- Want to participate and don't have a laser? – Send us an email. We have a whole bunch on order.

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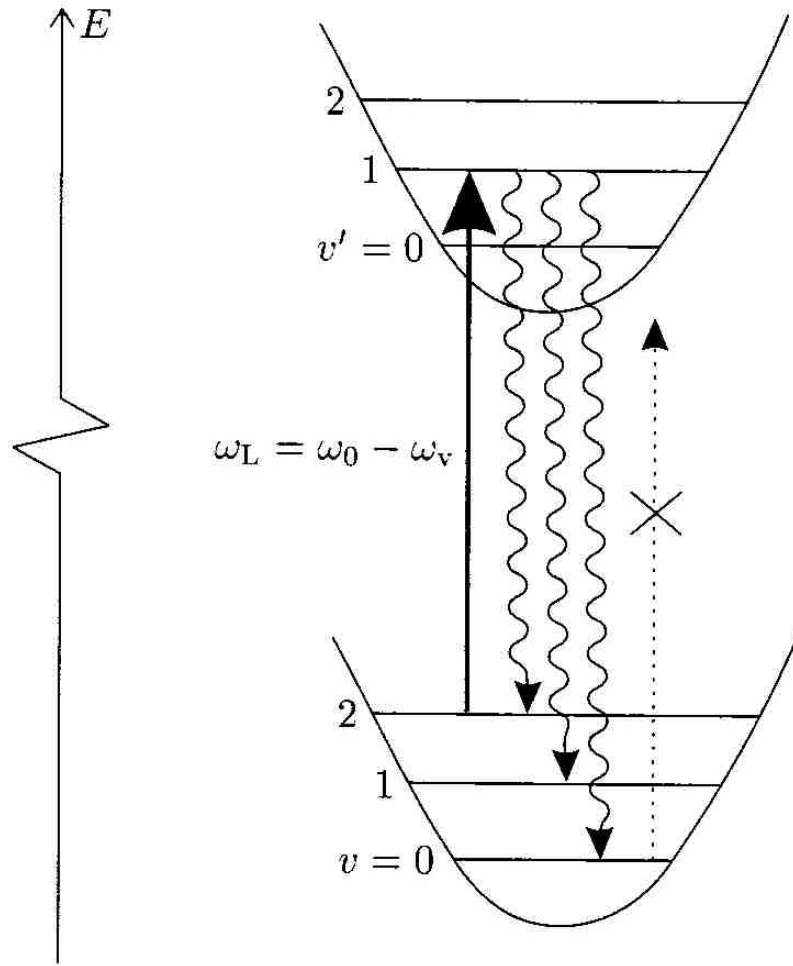
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Also visit <http://physics.wm.edu/laserfest/> for more information

Outline

1. Resolved sideband cooling for ions.
2. Magnetic traps.
3. Evaporative cooling.

Resolved Sideband Cooling



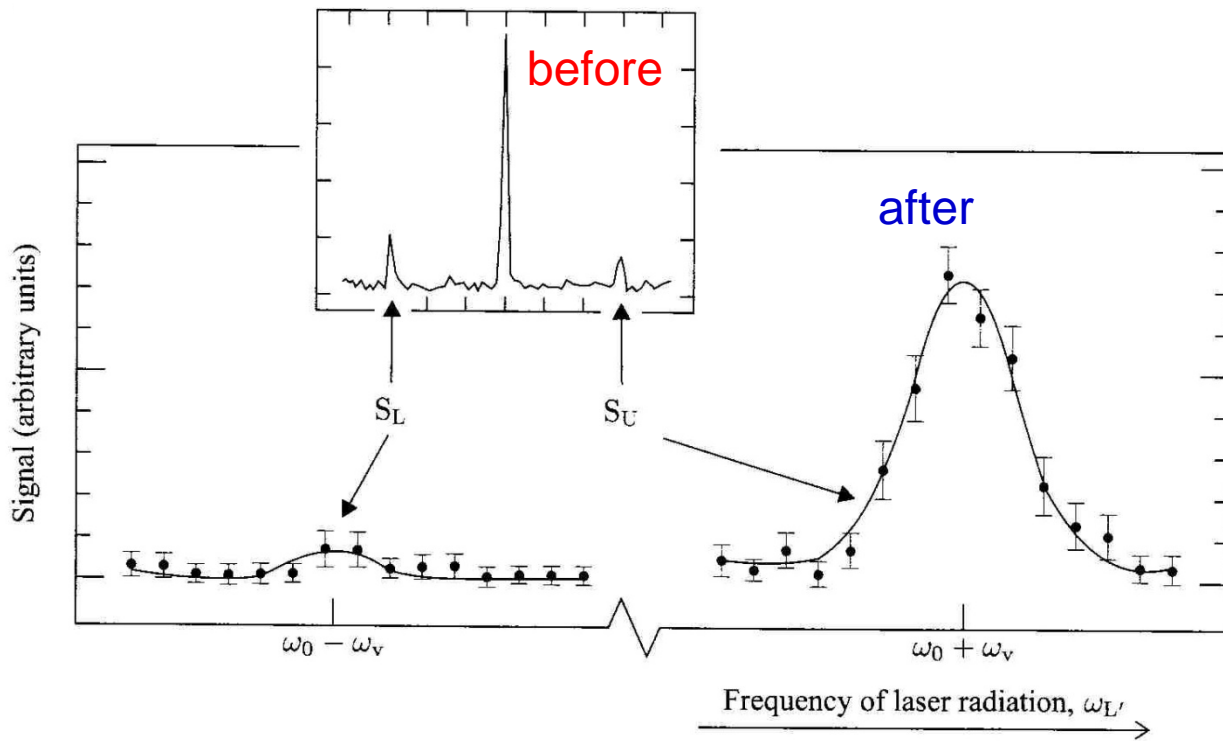
Generally used with ion traps

- trapping frequency large (MHz)
- scattering rate small (kHz)
(i.e. long lifetime)
- i.e. $\omega_v \gg \gamma$

[This technique can be implemented with neutral atoms, but it is difficult.]

Atoms accumulate in lowest trap vibrational state !!!

Resolved Sideband Cooling (Proof)



Absorption Spectrum

