

# Ljus – experiment för barn – resurssamling

Sammanställt 2008-03-30 av Sheila Galt, Fotonik avd, MC2, Chalmers, Göteborg

sheila.galt@chalmers.se

Bygg gärna på listan med fler tips, och maila till mig, så håller vi listan levande!

Resurssamlingen här har följande avsnitt:

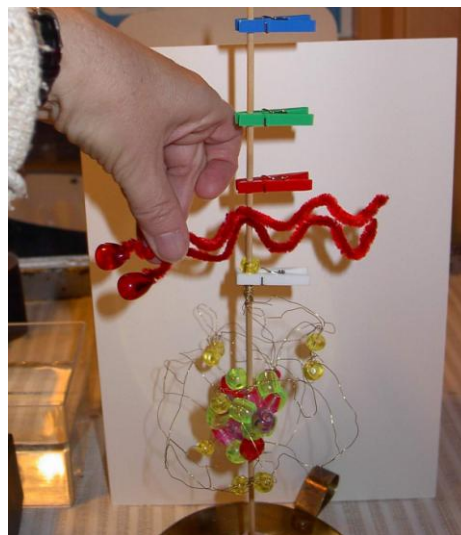
*Böcker om experiment med ljus*

*Websidor med samlingar av experiment om ljus*

*Websidor med specifika experiment om ljus*

*Pedagogik om optikundervisning*

*Referensinformation om materialegenskaper mm*



Modell för stimulerad emission av en foton från en atom,  
(min egen, kopiera gärna!) Ingår i lasermodellen!

## **Böcker om experiment med ljus:**

"Barn Forskar - Ljus" av Hilary Devonshire,

"Roligt att veta om ljus" av Brenda Walpole

"Magiska linser och hemliga skåp" av Pelle Eckerman och Sven Nordqvist.

"Laser Experiments Manual" av S. Rutherford

"Holografi" av Sven Göran Petterson (Lund)

"Holography Handbook" av Fred Unterscher, Jeannene Hanssen, Bob Schlesinger

"Photobiology", 2nd Ed, The Science of Life and Light, Lars Olof Björn

"Top Shelf Forensics" Barbara Deslich, John Funkhouser

"Fysikexperiment Optik" Alega skolmaterial

Alega skolmaterial: <http://www.alega.se/Katalogenpdf/BokOptik.pdf>

Många optikexperiment kan du också hitta i OSAs Optiksats (Edmund Scientific)

## Websidor med samlingar av experiment om ljus:

Lasergrötan, KTH: <http://www.chem.physics.kth.se/lasergrotta/se/index2.html>

Liseberg, Ann-Marie Pendrill: <http://fy.chalmers.se/LISEBERG/KRISTALLSALONGEN.html>

Nationellt Resurscentrum Fysik, Ljus Snacks:  
<http://www.fysik.org/website/snacks/listSubject.asp?subject=11>

Fascination of Light: <http://www.fascination-of-light.net/>

Cool Stuff Demos: <http://www.arborsci.com/CoolStuff/cool5.asp>

SPIE, Teaching tools: <http://spie.org/x1115.xml>

Optics for Kids: [http://www.opticalres.com/kidoptx\\_f.html](http://www.opticalres.com/kidoptx_f.html)

Optics for Teens: <http://www.opticsforteens.org/>

Hands on Optics: <http://www.hands-on-optics.org/home/>

OSA Classroom Materials:  
<http://www.osa.org/educationresources/youtheducation/classroommaterials/default.aspx>

Home training tools: [http://www.hometrainingtools.com/articles/teaching-tips/physical-sciences/acat\\_light-optics.html](http://www.hometrainingtools.com/articles/teaching-tips/physical-sciences/acat_light-optics.html)

Optics Demos Brown Univ:  
<http://www.physics.brown.edu/physics/demopages/Demo/optics/optics.html>

Scitoys: <http://sci-toys.com/scitoys/scitoys/light/light.html>



Spridning av laserljus i "spökvatten" mm

## Websidor med specifika experiment om ljus:

Fog on cold glass:

<http://www.thenakedscientists.com/HTML/content/kitchenscience/exp/stopping-fogging/>

Water fiber optics and reflected spoon:

<http://www.thenakedscientists.com/HTML/content/kitchenscience/exp/water-fibre-optics/>

Blue sky red sunset:

<http://www.thenakedscientists.com/HTML/content/kitchenscience/exp/why-is-the-sky-blue/>

Pinhole camera: <http://uw.physics.wisc.edu/~wonders/Pinhole.html>

Speed of light in microwave: <http://uw.physics.wisc.edu/~wonders/SpeedofLight.html>

Sugar: <http://www.usc.edu/CSSF/History/2003/Projects/J1520.pdf>

Hair: <http://demoroom.physics.ncsu.edu/html/demos/120.html>

Hair and CD/DVD: <http://www.cns.cornell.edu/cipt/labs/documents/webDiffractionofLight.pdf>

CD Spectrometer: <http://www.cs.cmu.edu/~zhuxj/astro/html/spectrometer.html>

[http://littleshop.physics.colostate.edu/onlineexperiments/CD\\_Spectroscope.html](http://littleshop.physics.colostate.edu/onlineexperiments/CD_Spectroscope.html)

<http://www.arborsci.com/CoolStuff/cool22.htm>

<http://www.uwm.edu/~awschwab/specweb.htm>

[http://sci-toys.com/scitoys/scitoys/light/cd\\_spectroscope/spectroscope.html](http://sci-toys.com/scitoys/scitoys/light/cd_spectroscope/spectroscope.html)

Info on CD spectrometer resolution:

<http://ioannis.virtualcomposer2000.com/spectroscope/toyspectroscope.html>

A Compact Disc Transmission Spectroscope by Tim Knauer in The Physics Teacher magazine [Phys. Teach. 40, 466 (2002)]

Compact Disc Spectroscopes Revisited! By Aidan Byrne [Phys. Teach. 41, 144 (2003)]



CD eller DVD?

## **Pedagogik om optikundervisning:**

Researchers on teaching optics:

Lillian McDermott, Driver (England), Treagust (Australia), and Anderson (Sweden).

Resource letter: <http://www.physics.umd.edu/rgroups/ripe/papers/rlpre.pdf>

Physics Education Research (PER): Edward F. Redish, University of Maryland:

<http://www.physics.umd.edu/perg/papers/redish/talks/light.htm>

Conference: Education and Training in Optics and Photonics (ETOP 2007)

<http://www.opeta.ca/ETOP2007/index.htm>

All ETOP conference proceedings: <http://spie.org/etop/>

## **Referensinformation om materialegenskaper mm:**

Refractive Index: [http://en.wikipedia.org/wiki/List\\_of\\_indices\\_of\\_refraction](http://en.wikipedia.org/wiki/List_of_indices_of_refraction)

<http://www.saburchill.com/physics/chapters3/0011.html>

<http://www.brooklyn.cuny.edu/bc/ahp/CellBio/RefIndex/RI.Main.html>

<http://www.2spi.com/catalog/ltmic/brix.html>

Salt sugar refractive index: [http://www.topac.com/Salinity\\_brix.html](http://www.topac.com/Salinity_brix.html)

refractive index of air: <http://www.av.s.org/pdf/Vossen-Hasan.pdf>

Real and virtual images: [http://www.mellesgriot.com/pdf/CatalogX/X\\_10\\_2.pdf](http://www.mellesgriot.com/pdf/CatalogX/X_10_2.pdf)

