

The Optics Institute
Of Southern California



The Speed of Light
an Exhibit



The OISC is co-located with [The Irvine CACT @ ATEP](#) a [National Science Foundation Center of Excellence for Optics & Photonics Education](#)

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Why was the OISC established?

- For many years, the Optics Community has had educational outreach to K-12 as part of its mission. The Optical Society of America, nationally and through its local chapters, has had some limited success with their programs. The situation of changing volunteers every year creates discontinuities in these efforts.
- Local optical societies' educational efforts needed a focal point to improve organization and effectiveness.
- Local education community lacks the ability to teach the basics of optics and photonics technologies.
- Local scientific and industrial communities need people knowledgeable about optics & photonics.
- The OISC was established to act as a continuous focal point for the Optics Community's Educational Outreach Activities.



What is the OISC?

- A focal point.
- A group that listens to the needs of the local optical science outreach education community and organizes and implements local solutions.
- The OISC was founded in Feb. 2003 by Donn Silberman, an optical engineer / manager with over 20 years experience in optical product development and a track record of volunteer optics educational outreach.
- The OISC has an Advisory Board and a large network of “Friends” locally, nationally and internationally to help achieve its goals.



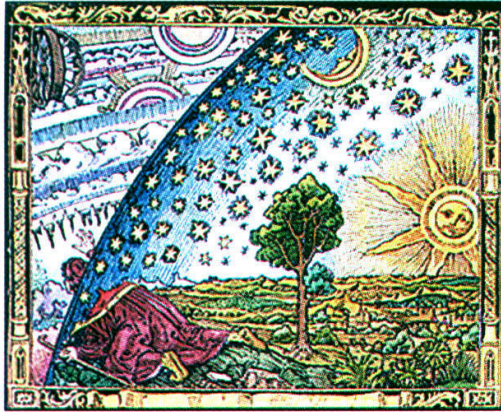
MISSION STATEMENT

- *The Optics Institute of Southern California is an Orange County-based nonprofit organization dedicated to the promotion of math, science, and engineering education through the use of optics and related technologies and phenomena.*
- *Our educational approach is hands-on, student-centered, and engaging.*
- *We seek to foster the curious scientist, the artful mathematician, and the creative engineer in every student, regardless of age.*



Education & Outreach

.....Already served over 4000 students....



In the beginning, the OISC partnered with UC Irvine's Gifted Student Academy and taught, "Astronomy and Space Science" This program used customized educational materials starting with the Branches of Astronomy and the Scientific Method. Hands-on Optics and Astronomy labs were conducted. Individual / team projects were researched in the campus science library and each student / team presented their results.

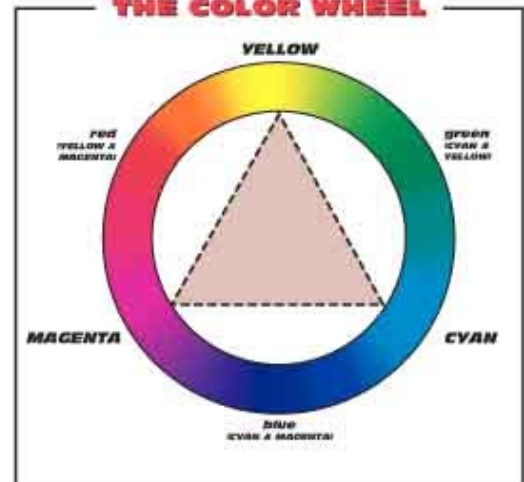
The OISC established a collaborative partnership with [THINK Together](#), ([Teaching, Helping, Inspiring, Nurturing Kids](#)) in Central Orange County to provide science education (using optics & astronomy) in after school programs.

This program uses the "Color My World" curriculum by Wendy Woolf, Science Education Consultant.

More programs are being developed for use at THINK Together facilities.

GASEF 008

THE COLOR WHEEL



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Optricks Days
Sat. & Sun.
March 10th & 11th, 2007

The OISC has partnered with the Discovery Science Center presenting Optricks Days, now four years in a row.

These are just a sample of the Programs the OISC has provided. Visit our website for more information and lots of photos.



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The Speed of Light Exhibit at Irvine City Hall



Through the Irvine City Special Events coordinator, the OISC presented its first major exhibit in October 2004

The exhibit space and 10'x6' panels was provided to promote local historical, educational and scientific information about optics.

Local optics related companies, institutions, foundations, and universities sponsored parts of this exhibit.



The exhibit was open to the public and local teachers will be invited to bring their students. Special hands-on optics presentations were arranged for students.

There was also a special grand opening reception.

http://oisc.net/speed_of_light_exhibit_at_irvine.htm

The Optics Institute
Of Southern California



The Speed of Light

An Exhibit at UC Irvine Beall Center for Art + Technology
Coming July 2008

Celebrating over 70 years of High Technology Research
And Innovation in Optics and related Sciences in Southern California.



Exhibit to include:

- Scale model of original plan
- Hands-On modern version of experiment
- Explanatory display panels
- Hands-on live interactive demos
- Related science display panels
- Art from a SOL Competition

The Michelson Speed of Light Experiment at the Irvine Ranch

$C = 299,792.4562 \text{ km/s (+/- 1.1 m/s)}$

Sponsorships are available.

The Optics Institute
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The Speed of Light Exhibit Description

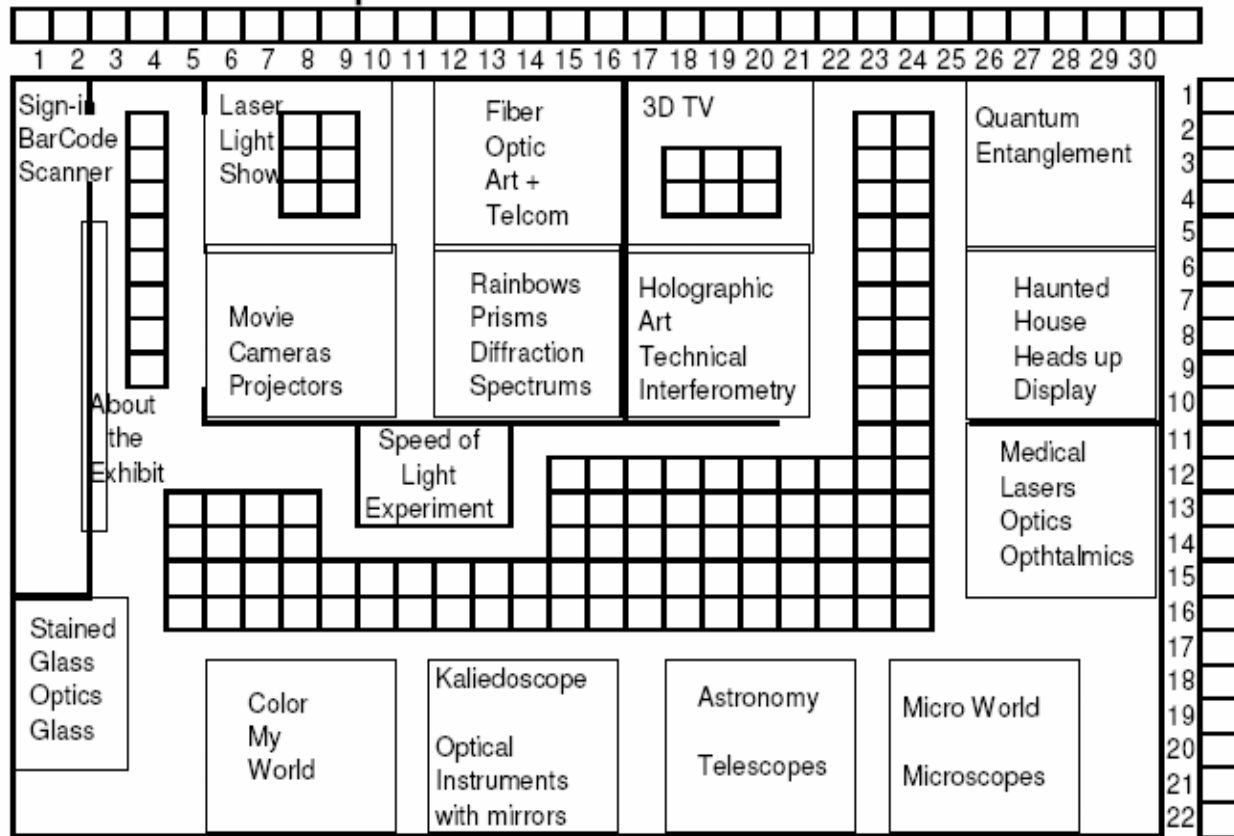
The Speed of Light Exhibit at the UC Irvine Beall Center for Art + Technology will have several aspects that deserve additional detailed description. These three aspects of this exhibit are:

1. **The Speed of Light Exhibit itself** which includes the scale model of Michelson's 1930 experiment at the Irvine Ranch and a modern working version (which will be described on a theme panel) which guests can walk up to and turn some knobs and press some buttons and actually 'take data' and create a graph that shows the results of measuring the "Speed of Light" There will also be a 'Theme Panel" associated with this aspect of the exhibit that describes the scientific history of measuring the Speed of Light locally and nationally and its importance for today's modern technologies. This leads us into the second aspect of this exhibit.
2. **The Theme Panels of related technologies** will describe many of the technologies that have been developed as a result of research in optics and light. Each Theme Panel will have one or two major sponsors who will provide content about the sponsors' industry or research area that showcases, educationally, the advances achieved by using light and optics. A list of proposed themes is included in this document.
3. The third aspect of this exhibit centers on local students coming to the exhibit as part of their science educational program (field trips.) The students will be allowed to explore the exhibit and provided some written materials to encourage them to 'find' information in the exhibit and theme panels. Then they will be directed to the 'conference room' where they will be presented with material based on the **Optics Suitcase**; a fully tested optics educational outreach program for middle school students. A more advance version of the Optics Suitcase will be used for High School students.



Speed of Light Exhibit @ Beall Center Preliminary floor plan

each square = 2 feet total = 60' x 44'



Each display is ~10'x10' for the physical hardware



The Speed of Light
ART COMPETITION

<http://oisc.net/art.htm>

July 11, 2007 – November 16, 2007

When Will We Make . . .



. . . The Jump to

Hyperspace?

Exhibit to be held July 2008 at:
Claire Trevor School of the Arts
University of California, Irvine



The Optics Institute
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The Speed of Light Exhibit Description

continued

There are several mutually inclusive goals of this exhibit:

1. Showcase the scientific educational history of the Speed of Light in the Irvine area and how it relates to the development of local technological competence.
2. Showcase the developed local technological achievements in local companies, colleges and universities.
3. Educate our local young people of all ages, (but primarily middle, high school and college students) about the wonders and possibilities of light and optics.
4. Use this exhibit as the first in a series of similar exhibits that will next move to the John Wayne Airport and then to places near and far as an extended public relations / marketing effort to promote the local Optics Community as a powerful engine of technological mobility.

Sponsor Recognition

There are several ways for our sponsors to be recognized before, during and after the actual exhibits, in print and over the internet:

1. On each aspect of the exhibit that a sponsor participates financially, they will be so recognized. For example, a sponsor that financially supports the exhibit and provides content for a Theme Panel, recognition will be provided on the panel. Recognition will also be provided on a special panel that lists all the exhibits sponsors.
2. Sponsors who provide funding for the educational “Theme Packets” that are given-away to the students will find additional recognition in these materials.
3. All sponsors will be recognized in all print materials associated with this exhibit and subsequent exhibits based on this one.
4. Press Releases (paper and electronic) and presentations associated with this and subsequent exhibits will recognize sponsors.

Sponsor Benefits – Marketing and Public Relations

The OISC recognizes that the sponsors will make good use of their advertising funds by supporting the OISC's projects like this exhibit, as it provides a cost effective means to have the sponsors' good names associated with the good works of the OISC in both the optics community and the community at large, where sometimes the next new applications for the sponsors' products and services may come!! And OISC support is tax deductible.



Optics Based Themes

- 1. Humanity Sees the Light***
- 2. Stained Glass***
- 3. Color My World***
- 4. Kaleidoscope***
- 5. Medical Laser***
- 6. Bar Code Scanner***
- 7. Astronomy***
- 8. Microscopy***
- 9. Photography***
- 10. Fiber Optics***
- 11. Spectrum***
- 12. Heads Up Display***
- 13. Holography***
- 14. Quantum Entanglement***



John Wayne Airport Exhibit Spaces

The Speed of Light Exhibit may be displayed in these spaces after the Beall Center



30 Wall display cases near the gates
12' wide x 6' tall x 3" deep



2 free standing cases
6' x 2' near the security lines



4 free standing cases
38" x 38" x 18" tall near food court



Administrative & Financial Summary

The OISC is a Project of Community Partners, a 501 (C)(3) non-profit organization that incubates other non-profits. Community Partners administers and oversees all the legal and financial aspects of the OISC. This leaves the OISC staff more time to focus on program development and implementation and to work with sponsors and collaborators.

The OISC needs financial support for major projects like the Speed of Light exhibits and smaller outreach programs like those with THINK Together the Discovery Science Center and UC Irvine and to develop new programs.

The OISC was founded by Director Donn Silberman and was primarily self funded. Now, your contributions enable the OISC's to continues its work.



Supporting the OISC

Some ongoing projects receiving donations include:

\$1000 - Optricks Cart - pays for Optricks Theme Packets for auditorium presentation to 250 students

\$400 - Optricks Suitcases - pays for one case complete with 75 sets of take-home Optricks Theme Packet Sets for 3 x 25 students (three classroom presentations) + the reusable materials.

\$100 - Optricks Suitcase Theme Packets - pays for one classroom presentation to 25 students



Supporting the OISC

Examples of donations contributed from each category:
(Donations can be contributed in cash / volunteer time / materials / facilities / exchange services and combinations.)

Societies - Grants

OSA Foundation - \$3000 for Optricks Cart

SPIE - \$9000 for 20x Optricks Suitcases

OSSC - \$2000 for Optricks Theme Packets

Institutions - Volunteer time & advise to OISC staff & members, facilities use

Discovery Science Center - volunteers to assemble Optricks Theme Packets

DSC Facilities and staff for Annual Optricks Days Events

Irvine CACT - Office space, classroom, teaching lab & outreach supplies storage\



Supporting the OISC

Government Agencies, Schools & After-School Programs

Irvine CACT - Office space, classroom, teaching lab & outreach supplies storage

MESA - Provide teachers, students & facilities for OISC outreach events

UC Irvine - Gifted Student Academy - students & facilities for outreach

Think Together - Provide teachers, students & facilities for OISC outreach events

Corporations - Provide materials for student hands-on project & exhibits

Newport Corp. - Speed of Light exhibit optics table & components

Opto-Sigma Corp. - Lenses for Magic Dot Optricks Theme packets (& other materials)

Advanced Medical Optics - Automated Optical Measurement Bench (MTF)

Irvine CACT - Hands-On Optics laboratory project kit

Associates – Consultants

Provide fee based expertise to local companies

Individuals provide Volunteer time

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Supporters & Collaborators

