

# THE OPTICS INSTITUTE

of Southern California

June 18, 2004

Meredith Schipani  
Senior Manager, Corporate Programs & OSA Foundation  
Optical Society of America  
2010 Massachusetts Ave. NW  
Washington, DC 20036-1023

Dear Meredith,

The Optics Institute of Southern California (OISC) is submitting this Grant Application for \$25,000 as the first step in process for you to review and submit to the OSA Foundation Board for our **“Speed of Light” exhibit project**. This project has already received some informal review at OSA and more detailed information is available on our website at: <http://oisc.net/SpeedOfLightProjectOverview.pdf>

## **The Speed of Light Exhibit Program – Overview & Scope**

The proposed Speed of Light Exhibit is a powerful program designed to introduce and excite children and families about the world of optics and its applications in their lives. Our two initial introductory sites for the exhibit are slated for Irvine City Hall in October 2004 (presented as a test site for the project), followed by a larger scale and expanded display of the exhibit proposed for John Wayne International Airport as part of their Arts Program. We are still in negotiations with the Airport for actual timing of the exhibit, which could begin as early as September 2005.

**The Speed of Light Exhibit** includes a scale model of Michelson’s 1930 experiment at the Irvine Ranch and a modern working version of this experiment which will be described on a theme panel. This “hand-on” exhibit will allow guests to turn knobs, press 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.

**Additional Theme Panels of related technologies** will further 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 more sponsors who will provide content (and funding) about the sponsors’ industry or research area that showcases, educationally, the advances achieved by using light and optics. A partial list of proposed themes is included in the project overview.

**Interactive Learning Sessions** for students, teachers and families are the third focus of the Speed of Light Exhibit. Field trips of students will allow for targeted area schools to experience the Exhibit as a part of their informal science educational program. Students will be allowed to explore the exhibit and will be provided with supportive learning 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 curriculum for middle school students. A more advanced version of the Optics Suitcase will be used for High School students and an introductory version for elementary students. Additionally, several teacher training sessions will be provided for targeted area schools, to assist teachers in incorporating optics education as a part of their school science curriculum.

## **Program relations to stated OSA Foundation Priorities**

This program currently relates to two of the four stated OSA Foundation priorities.

It will assist the OISC in its continuing Domestic Science (Optics) Educational Outreach efforts serving students and underserved populations. OISC already has an established outreach program in central Orange County, California where we have partnered with the Discovery Science Center and additionally an inner-city outreach program called THINK Together, that currently operates thirteen (13) K-12 after school programs in primarily low income Hispanic communities. The Speed of Light Exhibit will allow us to expand this outreach to broader Orange County populations, while establishing a “moveable” framework that can be taken to other venues throughout Southern California.

The Speed of Light Exhibit also supports OSA’s Educational Outreach Fund and its focus on supporting teachers and K-12 students. The Speed of Light Exhibit, regardless of its venue, includes the development of solid teacher training around the concept of optics and the speed of light, so that these concepts and curriculum can then be taken and incorporated via simple Optics Suitcase curriculum in their corresponding school classrooms.

Another major benefit of this project to the Optics Community is that the Theme Panels, once created, can be duplicated (reprinted) and used at many other venues around the country and the world to further promote the benefits of optical technologies.

This program will additionally assist the OISC in two main ways. First, we will be able to powerfully deliver our mission of optics education to students, teachers and families. Secondly, the exhibit itself will act as a major fundraising centerpiece for the OISC to reach out to the optics and local communities to further support our efforts in providing low or no cost science (optics) education to the underserved students in Southern California.

## **How is the current need addressed?**

Our nation’s and world’s future is dependent upon a society that values and appreciates the role of science—whether it be finding cures, producing new technologies, or being an informed citizenry that understands the impact of science (and optics) in our daily lives. Further, unless children are excited about science and the role that optics plays within this expanding framework, we will not have the graduates or employees of tomorrow that we need to carry the flame for the optics industry’s future.

The Speed of Light Exhibit is a powerful and mobile program that will bring the optics story into the minds of students, teachers and families. It is a program that, once developed and tested via our proposed two introduction sites, can literally be taken anywhere in the world for broader replication.

Secondly, it will have a positive impact on OISC and our ability to dramatically impact larger audiences. Our past efforts have operated on a volunteer basis with limited outreach funding targeted to local programs that have not included any science lessons (e.g. THINK Together). Also, there has been no public outreach effort (to our knowledge) that includes a traveling or easily duplicatable set of optics based theme panels for display at airports, science centers or other public venues.

## What is the value of this program?

Two main values of this program include that the material to be developed (The Speed of Light Exhibit and the Theme Panels) will serve educational purposes during the actual exhibit times and can be duplicated for other venues. Therefore, this program can have a long lasting impact. The second main value is that this program can be used as a fundamental fundraising tool for the OISC to continue to operate and meet the shared goals of the OISC and the OSA and other like minded organizations.

## Expected results at the conclusion of this project, beneficiaries and project evaluation.

At the conclusion of the Irvine City Hall Speed of Light exhibit, a three (3) week program, we expect to have reached over 200 students and teachers and several hundred people from the community. During the six months exhibit at the John Wayne Airport, we will have thousands of people walking by the exhibit and hopefully spending some time to read and comprehend the information and perhaps make interesting decisions about their lives and businesses. At these and other exhibit venues, we will have the opportunity to measure our success by capturing written comments from guests about their experiences at the exhibit.

## Timeline & Implementation Steps

### Speed of Light Commitments to Date

- 1) A test site for the exhibit's inaugural debut has been secured with the City of Irvine for October 2004.
- 2) The City of Irvine has agreed to fund a Grand Opening Reception, showcasing the Exhibit.
- 3) Positive discussions are underway and being finalized for a larger secondary introduction of the exhibit at Orange County's John Wayne International Airport. Timing for this venue is anticipated for September 2005.
- 4) Newport Corporation has committed to either donate or loan the equipment for modern version of the Speed of Light experiment, which is a central component of the Speed of Light Exhibit.
- 5) We have received a verbal agreement from Ultimate Image Printing to print all the Theme Posters (5' x 6'), at a rate of ~\$300 each, which is a discount from the regular \$480.

### Speed of Light Exhibit Timeline

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|---|-----------------------------|
| 1) Meet with Newport Corp to finalize donation – equipment specifications –     | <b>June 14, 2004 (done)</b> |
| 2) Have OISC Steering Committee meeting – Fundraising & Board Development –     | <b>June 16, 2004 (done)</b> |
| 3) Obtain funding for at least the graphic artist to create the Theme Posters – | <b>Need July 1, 2004</b>    |
| 4) Begin providing content to the graphic artist –                              | <b>Need July 1, 2004</b>    |
| 5) Order more Optics Suitcase Theme Packet materials –                          | <b>July 16, 2004</b>        |
| 6) Order / arrange for scale model of 1931 experiment at Irvine Ranch -         | <b>July 19, 2004</b>        |
| 7) Begin development hand-out materials for students & teachers -               | <b>July 19, 2004</b>        |
| 8) Complete Modern Speed of Light Experiment & Test -                           | <b>Aug. 20, 2004</b>        |
| 9) Complete graphics for Theme Panels and submit to Roland DGA for printing –   | <b>Aug. 27, 2004</b>        |
| 10) Complete Assembly of Optics Suitcase Theme Packets -                        | <b>Sept. 10, 2004</b>       |
| 11) Develop Guest Exhibit Comment / Evaluation Cards and print                  | <b>Sept. 17, 2004</b>       |
| 12) Receive finished scale model of 1931 experiment at Irvine Ranch -           | <b>Sept. 24, 2004</b>       |
| 13) Complete development hand-out materials for students & teachers -           | <b>Sept. 24, 2004</b>       |
| 14) Install exhibit at Irvine City Hall -                                       | <b>Oct. 2 &amp; 3, 2004</b> |
| 15) Grand Opening & Reception at Irvine City Hall –                             | <b>Oct. 5, 2005</b>         |
| 16) Exhibit closes – evaluation begins -  | <b>Oct. 22, 2004</b>        |
- Field trips by local students TBD. – estimated two trips 100 students each.

## **Requested Funding**

The OISC respectfully requests that the OSA Foundation consider a leadership grant of \$25,000 in support of this project. These funds would provide important seed funds to cover the hiring a graphic artist and administrative start-up for coordination and development of the project.

We thank you for your consideration of this request to bring the knowledge of the role of optics to students, teachers and families. We would be happy to answer any questions you might have, and look forward to partnering with OSA in bringing this replicable Speed of Light Exhibit and Program to fruition. For more information on this project or the OISC, please contact:

**Donn M. Silberman**  
**Director, OISC**