



The OSA Foundation supports programs that fall into three primary fund areas:

- Discovery Fund - support for young students & teachers
- Future Innovators Fund - career and professional development
- Global Outreach Fund - resources for those residing in developing nations

Below is a listing of completed OSF Programs. Please visit [www.osa-foundation.org](http://www.osa-foundation.org) for information about our current initiatives.

### Completed Discovery Fund Programs

#### **Educator's Day 2007**

The OSF was a proud sponsor of the 2007 Educator's Day and provided funding to purchase take-home materials for the 50 teachers that attended program. The materials included: Fluorescent marbles, Polarizer kits, Laser pointers, Fresnel lenses, Diffraction gratings, Prisms, Lenses, Color filters, and more. This program was also supported by a generous donation from Lockheed Martin.

#### **Optics and Vision Exhibit**

The Foundation provided a grant to support a newly opened exhibit on optics and optical illusions at the Fleischmann Planetarium and Science Center, Nevada, USA. The exhibit, which opened in late 2007, includes approximately 25 interactive displays designed to illustrate important principles of light and optics relevant to astronomy and vision. It also demonstrates basic principles of visual perception through optical and perceptual illusions. Located outside of the Fleischmann Planetarium and Science Center's IMAX Theater, this permanent optics exhibit will be visited by more than 35,000 attendees annually. Visit <http://planetarium.unr.nevada.edu/> for more information.

#### **Partnership with the National Coalition of Girls' Schools**

In 2006 the OSF provided a grant to the National Coalition of Girls' Schools (NCGS) that included classroom resources to help teachers integrate optics and photonics into science lessons. The grant also supported NCGS teacher training and outreach efforts.

The National Coalition of Girls' Schools (NCGS) is an association of girls' independent and public, day and boarding schools across the United States with affiliate partners in Canada, Australia, New Zealand, South Africa and the United Kingdom. NCGS is dedicated to providing opportunities for girls to realize their potential and be active and equal, confident and competent leaders, participants and contributors.

NCGS members saw first hand what Jell-O, radio waves and liquid crystals have in common at the 2007 NCGS Annual Conference workshop, "The Science of Light: A Unique Training Opportunity for Teachers". The OSA Foundation was pleased to support this event and provide each participant with a Hands-On-Optics Training Kit, an OSA membership, an invitation to attend Educator's Day and a subscription to OPN.

#### **Partnership with the Retired Scientists, Engineers & Technicians (ReSET)**

ReSET received a 2006 OSF grant in support of its volunteer outreach and recruitment efforts. Additionally, the OSA Foundation made available 10 "Optics Suitcases" for volunteers to take into the classroom and conduct hands-on optics demonstrations.

ReSET volunteers are retired scientists, engineers and technicians who give their time, energy, and expertise to school children in the DC-metro area. The organization works to provide scientific learning opportunities for children in primary schools in low-income and underprivileged sectors of Washington, DC.

#### **2006 Grant for the Optricks Cart**

The Optics Institute of Southern California (OISC) was awarded a grant to assist in the development of a portable educational program -- the "Optricks Cart." The cart includes an optics bench, atomic light sources, LCD projector and an overhead projector. The OISC holds regular optics and photonics educational programs as part of their "Optricks" series, including classroom activities with the Optricks Suitcase and a larger-scale event called "Opticks Days" for children in Southern California. The addition of the "Optricks Cart," makes it possible to reach a greater number of students through auditorium presentations and large community center events.

#### **2007 Youth Science Education Activity Grants**

Activity grants support the grassroots education efforts of OSA Local Sections and Student Chapters. These programs focus on local educators, parents and students with the objective of sharing information and generating excitement about science. 2007 grants:

## **Local Sections**

Huntsville Electro-Optical Society, Alabama, USA  
Project: SciQuest Optics Weekend/Alabama State Fair

New England Section of OSA, Massachusetts, USA  
Project: Support of State and Local Science Fairs

Optical Society of Southern California, California, USA  
Project: Discovery Science Center

Rochester Local Section of OSA, New York, USA  
Project: *Optics Suitcase* Outreach

Rocky Mountain Section of OSA, Colorado, USA  
Project: Hands-On Experience with Photonics II

## **Student Chapters**

Australian National University, Australia  
Project: Optics in the Outback -outreach project to remote communities

Ecole Polytechnique Student Chapter of OSA, Canada  
Project: Teacher Outreach

IFCO-OSA Student Chapter, Spain  
Project: Optics for High School - El Dia de la Luz

IOIP SC of the OSA – Erlangen, Germany  
Project: High School Talks & Optics Quiz

Koc University Student Chapter, Turkey  
Project: Solar Boat Race

Latvian Student Chapter of the Optical Society of America, Latvia  
Project: Student conference "Developments in Optics and Communications"

METU-OSA, Turkey  
Project: Competition in Photographing or Demonstrating Optical Phenomena & Open-House Experiment Days

Moscow State University Student Chapter of the OSA, Russia  
Project: Optics popularization activity - Experiments and displays to attract students to optics

Nanyang Technological University, Singapore  
Project: Promoting Optics and Engineering to High School Students

Naples OSA Student Chapter, Italy  
Project: "Orientamento scolastico per l'Ottica"

Norfolk State University, USA  
Project: Optical Science Fair Project & Optical Demonstration Folder

Northwestern University, USA  
Project: Optics Demonstrations

OSA Student Chapter at KAIST, Korea  
Project: Introduction of RSOA-based WDM PON for high school students

OSA Student Chapter at the University of Calgary, Canada  
Project: Visit to IQIS research laboratories for kids with high prospects for science

OSA-SCU, Brazil  
Project: UNICAMP Physics Olympiad for High School Students & Physics on Vacation V

Pontificia Universidad Catolica de Peru OSA Student Chapter, Peru  
Project: "Workshop on Optics for high-school students" & "Optics at Home"

Sofia University OSA Student Chapter, Bulgaria  
Project: Future in Focus

Southampton University Student Chapter, United Kingdom  
Project: Lightwave Roadshow

Stanford University, USA  
Project: Construction of Educational Modules (displays/demos)

Tecnologico de Monterrey, Mexico  
Project: Mood patch/Liquid crystals workshop

Universidad del Valle Chapter, Colombia  
Project: Optics Workshop for Students of Vulnerable Zones

Universidad del Valle Chapter, Colombia  
Project: Workshop on design of optical experiments and awards for the best school optical experiments in our city

Universidad Pontificia Bolivariana Campus Laureles-Medellín OSA Chapter, Colombia  
Project: Outreach to High School Students

University College Dublin (UCD) OSA, Ireland  
Project: Education Outreach - Junior High Optics Related Program

University of California at Berkeley Student Chapter of the OSA, USA  
Project: EDAY Demo Table, Outreach to local K-12 science programs, Recruiting high school kids for field of optics

University of New Mexico Student Chapter of the OSA, USA  
Project: Special Awards for Central NM Science and Engineering Research Challenge

University of Rochester Undergraduate Student Chapter, USA  
Project: Liquid Crystal Mood Patch Presentations

University of Sydney OSA Student Chapter, Australia  
Project: Outreach from local schools to do hands-on experiments.

V. Karazin Kharkov National University, Ukraine  
Project: "Making children interested in optical science" & Photography Contest

Yerevan State University, Armenia  
Project: Practice Work at the OSA Armenia Students Lab - Educational Outreach

## **2006 Youth Science Education Activity Grants**

### **Local Sections**

Huntsville Electro-Optical Society, Alabama, USA  
Project: SciQuest Optics Weekend/Alabama State Fair

New England Section of OSA, Massachusetts, USA  
Project: Support of State and Local Science Fairs

Rochester Local Section of OSA, New York, USA  
Project: "Liquid Crystal Mood Patch Lesson" for OSA Educators' Day

Southwestern Ontario Section of the OSA, Ontario, Canada  
Project: Optics Educational Outreach

### **Student Chapters**

Chernivtsi National University, Chernivtsi, Ukraine  
Project: Educational Project "Optics and Photonics"

Inst. de Ciències Fotoniques – ICFO, Barcelona, Spain  
Project: Optics Education for High School Students

Jerusalem College of Tech, Jerusalem, Israel  
Project: Poster Publication

KOC University, Istanbul, Turkey  
Project: Optic Education Kits Purchasing

Korea Advanced Inst of Science & Technology (KAIST), Taejon, South Korea  
Project: Intro of FTTx Technology for High School Students

Sofia University, Sofia, Bulgaria  
Project: OSA High School Teaching Award

Shanghai Institute of Optics & Fine Mechanics (SIOM) Student Chapter of OSA, Shanghai, China  
Project: Scientific Education Junior/Senior Middle Schools

Unicamp - IFGW, Campinas, Brazil  
Projects: Workshops on Physics Olympiads, IV Physics on Vacation, Open Doors University and OSA - SCU Fellowship Program to High Potentials Students

University of Rochester, New York, USA  
Project: Optics Suitcase Presentations and Promotion of Optical Engineering

V. Karazin Kharkov National University, YKharkiv, Ukraine  
Project: Photography Competition: "Optical Image"

Yerevan State University & National Academy of Sciences, Yerevan, Armenia  
Project: Development of an "Armenia Student Laboratory"

## **2005 Youth Science Education Activity Grants:**

### **Local Sections**

Columbia Local Section of OSA, Oregon, USA – This program provided teachers in rural parts of Oregon with optics kits and lesson plans. It also supported seminars about teaching optics in the classroom during the Oregon Science Teachers Association Annual Meeting.

Huntsville Electro-Optical Society, Alabama, USA - Sponsored an "Optics Day" at the local science museum, SciQuest, to enlighten grade school students about optics. The program also supported the "Optical Technologies" awards during the Alabama Science and Engineering Fair for students in grades 9-12.

New England Section of OSA, Massachusetts, USA - Sponsored prizes at Massachusetts State Science Fair and the Middle School Science Fair. The Section also funded demonstrations of optics at both events.

Optical Society of Greater St. Louis, Missouri, USA – This program supported optics awards for the Annual St. Louis Science Fair.

Optical Society of Southern California, California, USA – This grant provided funding for the development of an OSSC/OISC OPTRICKS Suitcase for hands-on optics demonstrations.

Rochester Local Section of OSA, New York, USA - Funded the manufacturing and distribution of optics kits as part of a "Liquid Crystal Mood Patch Lesson" that was developed for OSA Educators' Day. Over 200 students utilized these materials.

Rocky Mountain Section of OSA, Colorado, USA – Supported a class project on photonics for the Pomona High School, Arvada, CO. Students used lasers to complete a number of lab exercises. Their studies included investigations of laser characteristics, the properties of reflection, wave interference and diffraction. As a final project, the students built a laser show.

Southwestern Ontario Section of the OSA, Ontario, Canada – This program funded the development and distribution of high school level “Optics Suitcases” along with Web and CD-Rom educational materials. The group also hosted presentations for the Science Teachers’ Association.

Thailand Local Section of OSA, Bangkok, Thailand – The grant supported the development and presentation of 16 demonstration booths at the National Science Week Fair, including a “Miracle of Light Dome”.

### **Student Chapters**

Columbia University, New York, USA – This grant supported World Year of Physics activities. Activities were designed for high school students and included lectures and interactive demonstrations on the nature of light and color, light propagation, mirrors, lenses and more.

Duke University, North Carolina, USA – This grant provided financial support for designing and producing educational outreach demonstrations and materials.

Instituto Nacional de Astrofisica, Optica y Electronica (INAOE) at Tonantzintla, Puebla Pue, Mexico – This grant helped create an optics experiment program for elementary and high school students. Activities included presentations and experiments on refraction and diffraction of light, and making elementary instruments such as telescopes and microscopes.

KOC University, Istanbul, Turkey – This funding supported the chapter’s involvement in optics week for high school students. Chapter members led demonstrations using the “Optics Discovery Kits” and holograms.

Korea Adv. Inst. of Science & Technology (KAIST), Taejon, South Korea – These funds assisted in the development of a tutorial for high school students on optical fiber transmission, optics phenomenon, and WDM wireless communications.

Moscow State, Moscow, Russia – This program supported the development and distribution of materials used during a variety of education outreach activities.

National Institute of Technology, Trichy (NITT), Tiruchirappalli, India – This grant provided funding for local school demonstrations. Lesson topics included lenses, prisms, telescopes, and lasers.

Norfolk State Student Chapter, Virginia, USA – This funding supported activities at local elementary schools, including demos on waves, colors of light, and exploring microscopes. Teachers were supplied with Optics Kits.

Northwestern University, Illinois, USA – This grant funded the development of classroom activities for middle and high school students. The program helped to encourage students’ interest in optics and worked to build a connection between the local community and the university. It also provided university students with valuable teaching experience.

Peking University, Beijing, China – This fund supported the chapter’s participation in the “University Challenge Cup”, a highly honored science award at Peking University.

Pennsylvania State University, Pennsylvania, USA - Student members visited local elementary schools and presented optics demonstrations. Funding was used to purchase classroom materials.

School of Optics, Hyderabad, India – This grant supported a two day workshop for 9th and 10th grade students. Students worked with optical instruments and conducted experiments that involved lenses, prisms, gratings, spectrometers, lasers, and fiber optics. A one day workshop to help teachers include optics in their lesson plans was also conducted.

Stanford University, California, USA – This program supported the development of a multi-station exposition with interactive demonstrations on color, light propagation, reflection and refraction for use at local elementary and high schools.

Sofia University, Sofia, Bulgaria – This grant provided funding to create an optics web site for pre-college students with basic lessons in optics and physics. It also supported a physics competition that was held at a local elementary school.

Unicamp - IFGW, Campinas, Brazil – This grant supported a physics fair held for high school students. The fair included one day of experiments and lectures on physics and scientific methods. The next day was dedicated to presentations from the contestants.

University of New Mexico, New Mexico, USA – This grant funded a regional science and engineering fair. Approximately 6,000 students from grades 6–12 participated. The event helped raise awareness and interest in optical science and engineering. It provided a good opportunity for the university students to interact with local middle and high school students and teachers.

University of Rochester, New York, USA – This program funded an “Optics Suitcase” presentation for middle and high school students.

University of Southampton, Southampton, UK – This grant provided funding for the “Lightwave Roadshow” project. The roadshow included six sessions: the eye, mirrors, lenses, the spectrum, communicating with light and hands on experiments. The format allowed children to move from topic to topic. Sessions were tailored from 30 minutes to 3 hours. The mobility of the project allowed the chapter to reach more local schools and community centers.

University of Wisconsin – LaCrosse, Wisconsin, USA – This grant funded the development of “Project Kaleidoscope” a program that brought the fun of optics to third grade students. Presentation topics included kaleidoscopes and basic optics.

Yerevan State University & National Academy of Sciences, Yerevan, Armenia – This grant funded an optics lab program for 8th–10th grade students. The program included lessons and about laser physics, resonant optics, laser spectroscopy and nonlinear optics.

### **2005 Teacher Resource Packs**

The Foundation provided pre-college teachers with optics and photonics resources appropriate for middle school through high school students. The packs included an OSA Teacher Membership, a “Laser Technology” video, an “Optics Demonstration with the Overhead Projector” book, and an “Optics Discovery Kit.” Packs were awarded to teachers in Alvin, Texas, USA; Albuquerque, New Mexico, USA; Jacksonville, Florida, USA; Randallstown, Maryland, USA; Redford, Michigan, USA; London, United Kingdom; Ratchaburi, Thailand; Brasov, Romania; Mississauga, Ontario, Canada; Andhra Pradesh, India.

### **2003 Youth Science Education Activity Grants for Local Sections**

Columbia Local Section of OSA, Oregon, USA – This grant supported workshops for local middle and high school teachers about teaching optics in the classroom.

Huntsville Electro-Optical Society, Alabama, USA - Sponsored an “Optics Day” at the local science museum, SciQuest and education outreach to schools in the community.

New England Section of OSA, Massachusetts, USA - Sponsored prizes at regional Massachusetts science fairs.

Optical Society of Greater St. Louis, Missouri, USA – This program supported optics demonstrations for elementary/secondary schools children.

Optical Society of Southern California, California, USA – This grant provided funding for the development of an OSSC/OISC OPTRICKS Suitcase for hands-on optics demonstrations.

Rochester Local Section of OSA, New York, USA - Funded development of Optics Suitcase for presentation at local middle schools.

Southwestern Ontario Section of the OSA, Ontario, Canada – This program funded an optics outreach/education program for eighth grade teachers.

Thailand Local Section of OSA, Bangkok, Thailand – The grant supported local k-12 science education programs, which focused on photonics.

## **Completed Future Innovators Fund Programs**

### **2007 Student Professional Development Program**

The OSA Foundation sponsored the professional development workshop “Going for the Goal!” as part of the Student Chapter Leadership and student programming during OSA’s annual meeting -- “[Frontiers in Optics](#)”. Additionally the Plenary Session and “Best of the Best” Topical Meetings Session were recorded and made available for OSA Student Members via DVD and podcast.

### **2006 Student Professional Development Program**

The OSA Foundation sponsors professional development lectures and activities as part of the Student Chapter Leadership and student programming during OSA’s annual meeting -- “Frontiers in Optics”. Lectures topics include: “Life After Graduation”, “Effective Ways for Presenting a Technical Paper”, “How to Write a Resume” and “Developing Effective Networking Skills”.

### **2005 Student Professional Development Program**

OSA Foundation sponsored presentations during the CLEO 2005 event including: “How to Present a Technical Talk” and “Stuff You Didn’t Learn in School”. The Foundation also sponsored a “Post Doc Workshop” and career workshops.

#### **2004 Student Professional Development Program**

The Foundation provided funding to support series of professional development lectures that were held during the CLEO 2004.

#### **2004 Presidential Student Chapter Recognition Awards**

This program provided financial support to outstanding student chapter leaders and faculty advisors in recognition of their service to OSA, their respective universities, and the field.

### **Completed Global Outreach Fund Programs**

#### **2007 International Student Travel Grants**

The OSA Foundation provided travel grants to students from Armenia, Brazil, China, Colombia, Latvia, Mexico, Russia, South Korea, Taiwan and Ukraine. Students used this grants to attend OSA Topical Meetings and Frontiers in Optics.

#### **2007 Ghana/India Outreach Program**

The Foundation supported the outreach efforts of the Albannach Alliance Student Chapter (AASCCOSA), Scotland by funding a trip to Ghana and India, where a Chapter representative gave presentations and talks at the local schools and universities.

#### **Traveling Lecturer Program**

The OSAF provided support for lectures to travel to India and Peru in 2007, to speak with OSA Student Chapters. Dr. José Sasián gave two presentations: "Overview of optical lens technology" and "The mirror lab at the Univ. of Arizona and the Great Magellan Telescope" and Dr. Virendra N. Mahajan spoke about "Optical Imaging and Aberrations".

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#### **2005 OSA Membership Grants**

The Foundation provided over fifty scientists and students with complimentary OSA membership allowing them access to OSA's wide range of information and networking benefits. Recipients included individuals from Bulgaria, China, Colombia, Mexico, Nigeria, Russia and Ukraine.

#### **2004 International Student Travel Grants**

The Foundation awarded a number of travel grants and registration stipends to students who were first authors of papers or posters presented at OSA-sponsored meetings and conferences.

#### **"OpticsForKids.org" Translation**

OpticsForKids is an OSA-hosted Web site for young students, parents and educators. In 2004, the Foundation sponsored the translation of the award-winning site into Spanish.