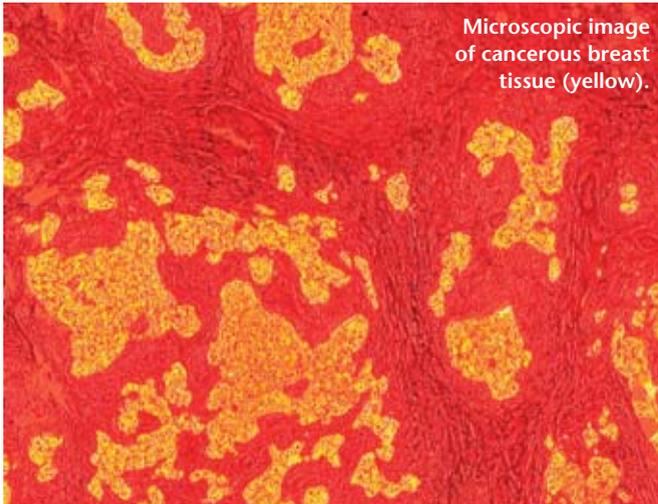


Arcturus Bioscience Inc.



Microscopic image of cancerous breast tissue (yellow).

OSA Partners with ASCO

OSA will sponsor a session on technologies for the detection and treatment of cancer at the annual meeting of the American Society of Clinical Oncology on May 14, 2005. The session, organized by OSA member Thomas Baer, will cover the design and perfor-

mance of the newest tools for detecting tumors, molecular analysis of biopsies and strategies for incorporating the technology into research and practice.

More information is available at: www.osa.org/education/prof/panel/Cancer_Treatment/default.asp.

Mark Your Calendars

Integrated Photonics Research and Applications Nanophotonics for Information Systems

April 11-15, 2005

San Diego

www.osa.org/ipra

www.osa.org/npis

Adaptive Optics: Analysis and Methods/Computational Optical Sensing and Imaging/Information Photonics/ Signal Recovery and Synthesis

June 6-10, 2005

Charlotte, N.C.

Pre-register by May 13

www.osa.org/ao

Optical Amplifiers and Their Applications Topical Meeting and Tabletop Exhibit

August 7-10, 2005

Budapest, Hungary

Submission Deadline: April 13, 2005, noon EDT

www.osa.org/oa

Student Chapters Lend a Hand To Promote Optics



Kyiv Taras Shevchenko National University

Members of the new OSA student chapter from Kyiv Taras Shevchenko National University in the Ukraine helped organize the 5th International Young Scientists Conference. The theme of the conference was "Problems of Optics and High Technology Material Science;" it covered nanotechnology, thin films and coatings, lasers and optoelectronics and biomedical applications of optics. Many international scientists gave pertinent talks, including OSA fellow Yuriy Kivshar, whose presentation was titled, "Left Handed Metamaterials and Negative Refraction."



National Institute of Technology, Tiruchirappalli

Students at OSA's new student chapter at the National Institute of Technology, Tiruchirappalli, in Tamil Nadu, India, are planning events to raise awareness of optics on campus. Proposed events focus on building relationships with local colleges. The chapter is planning to hold an optics awareness workshop with students from many area schools and would like to host an international speaker at their institution.

Who's Who on OSA's Board of Directors

What drew you to physics and engineering?

I am a product of Sputnik, the space race and the "science is cool" generation. I remember getting up at 4:00 a.m. to watch Alan Shepard and John Glenn on television, and being transfixed by the U.S. moon landing.

I also participated in many science fairs, and some of my projects had profound effects on me. In junior high, for example, I performed a Fourier analysis of sounds produced by various musical instruments. Computers were in their infancy (and I did not have access to one), so I photographed an oscilloscope as my friends played their instruments in front of a microphone. I then printed the pictures, traced the oscilloscope patterns onto graph paper and calculated the Fourier coefficients by counting squares on the graph paper. Ever since then, I have been interested in resonant structures and applying signal processing techniques to investigate physical phenomena.

By the time I was a senior in high school, I wanted to study physics or electrical engineering. Cal Tech had a new undergraduate program in applied physics, and that was a perfect fit for me.

What was your experience like at MIT's Lincoln Laboratory?

I was part of the group that pioneered much of the early development of diffractive optical elements with modern microelectronics tools. I specialized in applications of diffractive optics to laser resonators and semiconductor laser arrays. I found this experience very rewarding.

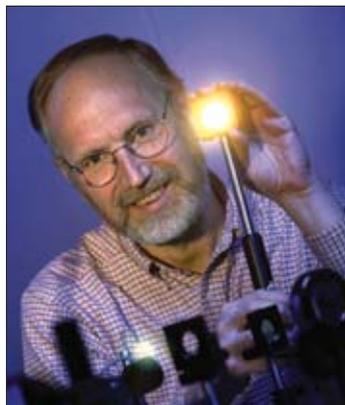
At times, it reminded me of graduate school, where one could really delve into the intricacies of a problem. There is also no substitute for working on a team with many smart, motivated individuals. Scientifically, this was one of the most satisfying times in my career.

Describe your work at the University of Minnesota.

My research group is interested in applications of physical optics, especially regarding diffraction and polarization. Part of our work is on laser resonator design; we have investigated various resonator geometries to improve laser performance, including beam shaping, spatial mode purity, thermal aberration correction, spectral purity and others. Another aspect of our research is to apply diffraction and polarization to metrology problems. Finally, our group works with optical system design with micro-optical components.

How does your work as an *Optics Express* editor compare with that for print publications?

Optics Express is much more intense than *Applied Optics* (where I was a topical editor for six years), simply because the turn-around time for articles is shorter. The phenomenal success and expansion of *Optics Express* makes the job exciting and frustrating at the same time. I am excited to be part of a successful experiment in electronic publishing, but it has become hard to find good reviewers who can fit the job into their busy schedules.



James Leger

Director-at-Large

Lives: Minneapolis

Works: University of Minnesota

Education: Bachelor's degree in applied physics, California Institute of Technology; doctoral degree in electrical engineering, University of California, San Diego.

How has the education of engineers changed over time?

I recently had the opportunity to take a very long view of education by editing a book on the history of the University of Minnesota's electrical engineering department. In the 1880s and 1890s, the first several years of a student's education were filled with drawing courses, shop work and fundamental math and physics. Not until their senior year were students introduced to the concept of AC circuits. Interestingly, optics entered into the curriculum early as "illumination engineering." As radio and other communication technologies were introduced in the early 20th century, the curriculum had to adapt, pushing many courses (AC circuits) earlier in the program and eliminating others (drawing and shop work).

Similarly, in the mid-20th century, semiconductor technology and many optics and electromagnetics courses began to migrate from physics to electrical engineering departments. In the latter part of the century, computer technology (microprocessors, digital signal processing) was embraced by the basic electrical engineering curriculum as well. It will be interesting to be part of the next curriculum shift, as nanotechnology and biotechnology play more of a role in the field.

What approaches work well for teaching young students?

I am a very strong proponent of primary and secondary school outreach programs. The primary school years are critical to sparking students' interest in science and technology, and young children are very open to science demonstrations.

The OSA-developed "Optics Kits" are a nice way to introduce students to the wonders of light. The more dramatic the experiment, the more memorable it tends to be.

Some of my favorites are passing a current through a dill pickle (it lights up like a sodium vapor lamp) and lighting fluorescent lights with a tesla coil.

What do you do in your free time?

I enjoy music of all types. I also love experiencing the outdoors, whether through hiking, canoeing or taking a winter walk.

However, I view my daily activities as a continuum that spans from professional obligations to volunteering for OSA to having fun with science demonstrations. There is no "free time;" there is just "time," and I try to make the most of it each day.

— Grace Klonoski