



From the President, Neil Nelson

At our last meeting I realized how I had changed since my first volunteering to help out with the OSSC. I first attended the OSSC meetings after seeing notices posted in the hallways at Northrop. I found the meetings interesting but did not see any reason to become more involved. I saw the notices in the hallway so I did not see any need to join if all it meant was that I would get the newsletter in the mail. The people that I knew that were involved were all optical designers so I thought it was sort of a CodeV club. I gradually found out that the topics were much more diverse than just optical design and noticed the people that attended were also diverse. My involvement increased when I needed to change jobs. At one of these meetings I even wrote on my nametag, 'I need a job'. This method did not work very well but I found another job with other more sophisticated means. I then got a phone call from Tom Godfrey to see if I would like to be the arrangements chair. I reluctantly agreed. To my surprise I actually enjoyed the meetings but I still perceived myself as an outsider. The following year I was asked to start going up the ladder and decided I would continue on as arrangements chair. I could not envision myself as being president so why should I start going in that direction. Everything changed when I was asked to be the programs chair. It was definitely scary but I had heard from Susan Raffenberger how much she enjoyed this position so I gave it a try. I found that my creative talents were contributing to the meetings. Don Wolpert gave me a topic and a lead but no speaker so I started calling. By this time I had seen enough

boring speakers so I could recognize a dud. I ended up finding an excellent speaker and at a later meeting OSSC members actually commended me for the speakers that year. What I hated the most about the programs chair was the introduction. This was mostly due to my lack of public speaking experience and nervousness that you are talking about a person right in front of you instead of an abstract announcement. As I look back through the positions I would have to say that programs chair was the most enjoyable. In those days I did not have a committee but I got all the help I needed. Anyway, why should the committee have all the fun of finding the speakers? As I continued up the ladder I noticed that our purpose was not just to get speakers every month but to facilitate education in the field of optics. I watched Reddy Chirra finding ways to help out at local high schools and more recently Donn Silberman with his creation of the OISC. A few weeks ago I was able to give some fliers on the Sally Ride Festival to one of my daughters science teachers and it was cool seeing her excitement. This weekend I will be going to the Sally Ride Festival with my daughter and am looking forward to the opportunity to meet other teachers. I am confident that education will be my focus after duties with the OSSC are completed. (Don't worry, this is not a goodbye letter.) When I first came to OSSC it was all about what I could get; now it is about what I can give to others. I'm glad that I agreed to that request to become more involved in OSSC and am grateful for the influence it has had on me.

Meeting announcement

Wednesday, Jan. 12, 2005 we will meet in Culver City for an update on the *James Webb Space Telescope* by Scott Texter, Space Technology telescope manager.

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Images Newsletter

Please give newsletter submissions to Len Wayne (see above) by the first of the month for publication that month.

OSSC is the Southern California Section of the Optical Society of America and is a non-profit organization.

DAVIDSON OPTRONICS, INC.

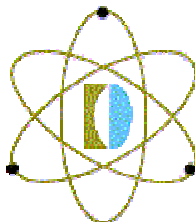
Don Davidson at the age of 22 started Davidson Manufacturing in 1932. A few years later his brother, Duncan Davidson, joined the company. The first plant was in Alhambra, California. They manufactured displays and instruments for the Griffith Park Observatory in Los Angeles. One of the most unique instruments was a computer for Scripps Institute, to measure the rise and fall of ocean tides. Early in 1942 they had a small foundry and machine shop to manufacture sea valves for Navy ships, as well as some aircraft parts. After World War II, they manufactured plumbing supplies (faucets, valves, etc.) for the housing industry. Around 1950 they started into photographic equipment with a small optical shop. Projectors, slide binders, 'Star D' Tripods and a single lens reflex camera were among the products they manufactured. A year or so later they developed and started manufacturing end housing range finders for tanks. Also, at this time their current president, James McBride, came on-board. In 1953 the current building located in West Covina, California was built and all manufacturing was moved there. This included an Optical Shop, Machine Shop, Coating Department, Carpentry Shop, Paint Shop, Reticle Department, Mechanical and Optical Assembly and Inspection.

In December 1958 it became Davidson Optronics, Inc. Among the members on the original board of directors was Don O. Hendrix. Mr. Hendrix was the master optician at Mount Wilson Observatory and he was the optics-polishing supervisor responsible for many Schmidt plates made for the Mount Wilson and Palomar Observatories. He also developed the Hendrix Interferometer, which is a modified Twyman-Green interferometer, one of which is still used at Davidson Optronics. A few references to Mr. Hendrix's work can be found in the book "The History of the Telescope," written by Henry C. King and published by Dover.

In the late 50's and early 60's the optical instrument line was developed for the aerospace industry. All the photographic line was sold. During this time and to the present time, Davidson Optronics developed and manufactured optical trackers, star simulators, large astronomical mirrors, the prism assembly for the TOW missile and many other testing systems for just about every missile program in the United States.

Through the years, Davidson Optronics manufactured Night Observation Devices, Starlight Scopes, and M32 periscopes, as well as a standard line of products, such as autocollimators, alignment telescopes, interferometers, and the TV Optoliner for testing video cameras. Davidson Optronics also fabricates to print, and makes high precision components such as lenses, prisms, polygons, five-sided cubes, wedges, flats, and custom optics. Customers include the military, the aerospace industry, and commercial companies.

The crew at Davidson Optronics welcomes the opportunity to work with you at any point in your program in any of the following areas: optical design, tolerance analysis, environmental analysis, transmittance and polarization. They can assist in assembly and alignment plans, and supply high-precision optical components such as lenses, prisms, and custom optics per your specifications. They can also supply prototype/production hardware and complete custom optical systems.



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A Snapshot of Optics Research at UC IRVINE

Including three talks and a tour

- Richard Nelson will discuss a miniature tunable Fabry Perot etalon.
 - Joerg Meyer will discuss Biomedical Imaging.
- Zhongping Chen will discuss the use of Optical Coherence Tomography for medical diagnostics.
- Goran Matijasevic will provide a tour of the Integrated Nanosystems Research Facility (INRF).



Dr. Richard Nelson is developing a MEMS-based Fabry Perot Etalon for use in imaging applications in the MWIR and LWIR spectral bands. The work is sponsored by the USAF and the US Army. Spectral imaging should also find extensive use in medical applications.

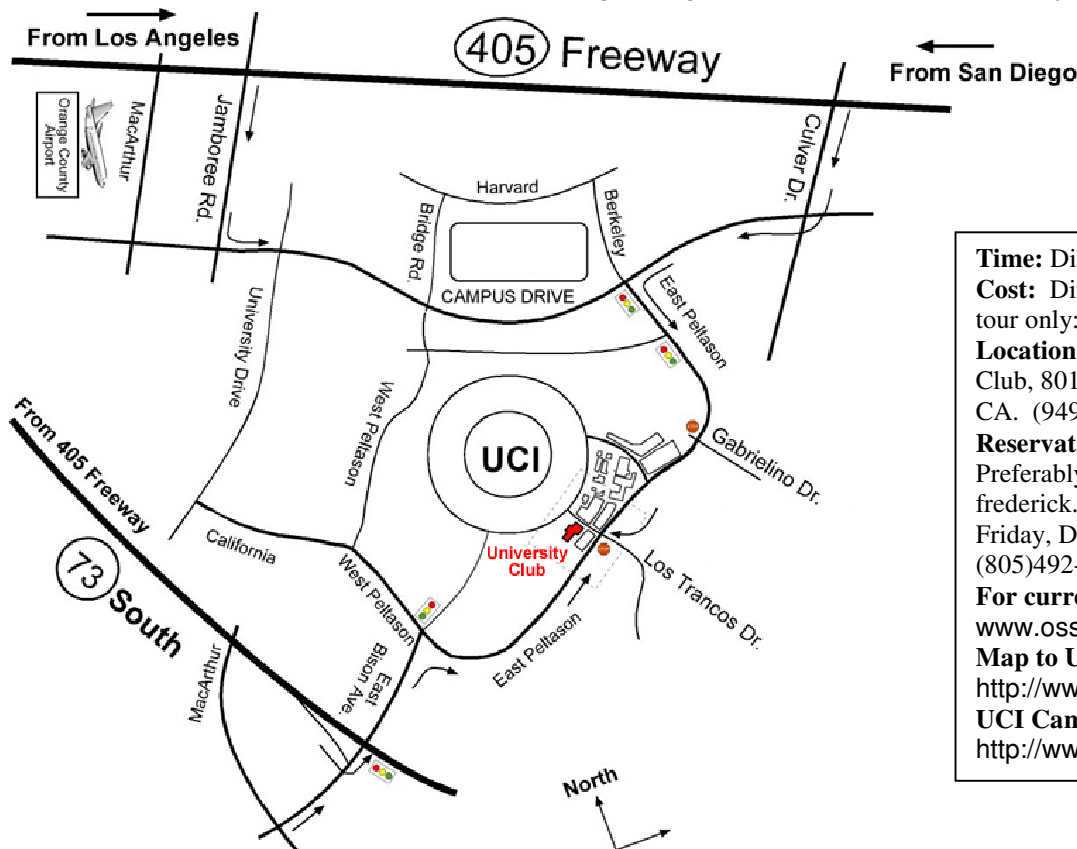
Richard Nelson (www.ece.uci.edu/~rnelson) joined UCI as Adjunct Professor of Electrical Engineering and Computer Science in 1993 and has active research programs in micro-optics, micro and nanofluidics, electro-optical detectors and materials science. Prior to joining UCI he worked in industry (Rockwell International and Ford Aerospace) for 20 years.

Dr. Joerg Meyer has a joint appointment as Assistant Professor with the Department of Electrical Engineering and Computer Science and the Department of Biomedical Engineering. Dr. Meyer's research is focused on large-scale biomedical imaging, interactive rendering of biological and medical data sets (CT/MRI/confocal laser-scan microscopy/cryosections), and biomolecular visualization (DNA/RNA/protein folding). He is also interested in large-scale earthquake visualization (ground motion and structural response simulations), and other application fields in scientific visualization. His teaching includes Computer Graphics, Interactive Rendering Techniques for Biomedical Imaging and Virtual Reality.



Dr. Zhongping Chen (chen.bli.uci.edu) joined UCI in 1995 and is Associate Professor of Biomedical Engineering. His group focuses on the development of a non-invasive optical method for tomographic imaging of *in vivo* tissue structure and hemodynamics with high spatial resolution. The technology, optical coherence tomography and optical Doppler tomography (OCT/ODT), is similar to ultrasound and Doppler ultrasound. However, it uses near infrared optical waves instead of sound waves. Consequently, the spatial resolution of OCT/ODT image is two orders of magnitude better than that of ultrasound imaging. The exceptionally high spatial resolution of phase resolved OCT/ODT allows *in vivo* "optical biopsy" of tissue structure and physiology. OCT/ODT is a new imaging modality that has a larger number of applications in biomedical research and clinical medicine.

The Integrated Nanosystems Research Facility, INRF (www.inrf.uci.edu), is a major clean room facility on the UCI campus for the fabrication of MEMS, NANO, optical, and semiconductor devices. The facility is used by researchers across the UCI campus, other universities, and industry. **Dr. Goran Matijasevic**, the INRF Research Coordinator, received his PhD in Electrical Engineering at UCI in 1991 and more recently an MBA.



Time: Dinner starts at 7pm.
Cost: Dinner: \$20. Speakers and tour only: no charge.
Location: UC-Irvine University Club, 801 East Peltason Drive, Irvine, CA. (949)824-7960.
Reservations: Preferably by email to Fred Houston, frederick.houston@verizon.net by Friday, Dec. 3, 2004, or call (805)492-0077.
For current updates: www.osscc.org
Map to University Club: <http://www.uclub.uci.edu/>
UCI Campus Map: <http://www.uci.edu/campusmap/>

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These companies provide funding to the Optical Society of Southern California,
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