



From the President Gaylord Moss

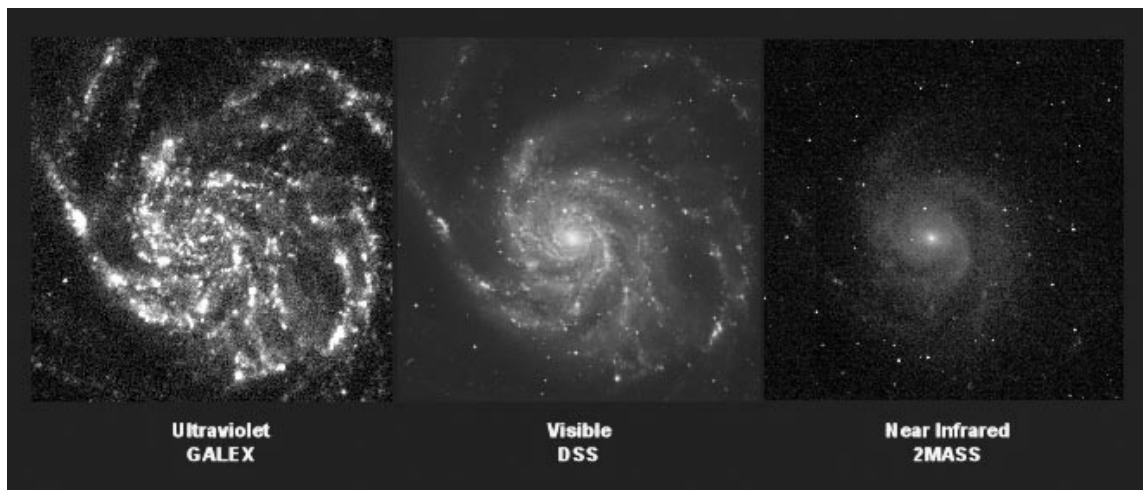


At our December meeting, the OSSC was privileged to have another speaker on the topic of the exploration of our universe. Dr. David Shiminovich of Columbia University gave an inspiring talk on the Galaxy Evolution Explorer (GALEX) ultraviolet space telescope project for the study of the formation of galaxies. The technical details showed great ingenuity in accomplishing much with a limited budget. Many splendid photographs separated characteristics of old stable galaxies and new ones still in formation. They showed, for example, that places where stars are being formed are much more energetic and emit in the bluer UV regions. The older, cooler stars emit in the redder regions. The

three photographs below show the new star formation areas in the spiral arms that are revealed in the UV photo to the left. The IR photo on the right shows the cool, old stars in the galaxy's core.

We take the knowledge of the hundreds of billions of galaxies in our universe for granted and yet it was only in 1923 that Edwin Hubble discovered that our own galaxy was not the limit of our universe. It is interesting that his discovery was based on the work of Henrietta Leavitt, a photographic analyst at Harvard University. Being a woman, she was not allowed to pursue her own scientific topics but could only carry out the computational work that was assigned to her. She happened to be brilliant and thus went far beyond the mechanical tasks assigned to her. Her analysis of variable stars, 2400 of which she discovered herself, led to her most important contribution to astronomy. By painstaking study of a certain class of variable star, the Cepheid's, Leavitt discovered a direct correlation between the times it took a star to go from bright to dim to how bright it actually was. This was like being able to know the wattage of a light bulb by observing its flicker rate. Then, to measure the distance to it, one would only need to measure its brightness.

Thus, Leavitt's Cepheid variable period-luminosity relationship provided the standard candle that permitted Edwin Hubble to make his momentous discovery that many objects that we had assumed were part of our galaxy were actually enormous, far distant galaxies themselves. In 1929, Hubble went further, showing that the universe was not static but was expanding. This was momentous news, even to Einstein, who had modified his theories to fit a static universe, which he, said later was his greatest blunder. In more recent times, the famous cosmologist Steven Hawking has called this discovery of Hubble's "one of the great intellectual revolutions of the 20th century." Lectures, like Dr. Shiminovich's impress one with the exciting world of cosmological discovery that we still live in today. In the words of Edwin Hubble, "Equipped with his five senses, man explores the universe around him and calls the adventure Science."



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Images Newsletter

Deadline for contributions is the date of the monthly meeting preceding the next issue. Send information to:
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OSSC is the Southern California Section of the Optical Society of America and is a non-profit organization.

Wednesday, January 21, 2004

Topic: "Combating Channel-Degrading Effects in Optical Fiber Communication Networks" **Speaker: Dr. Alan Willner**

About the Speaker

Alan Willner received his Ph.D. from Columbia University, has worked at AT&T Bell Labs and Bellcore, and is Professor of Electrical Engineering at USC. He has received the NSF Presidential Faculty Fellows Award from the White House, Packard Foundation Fellowship, NSF National Young Investigator Award, IEEE Fellow Award, OSA Fellow Award, Fulbright Foundation Senior Scholars Award, IEEE LEOS Distinguished Traveling Lecturer Award, and USC University-Wide Award for Excellence in Teaching. Prof. Willner's professional activities have included: President-Elect of the IEEE LEOS, Editor-in-Chief of the IEEE/OSA Journal of Lightwave Technology, Editor-in-Chief of the IEEE Journal of Selected Topics in Quantum Electronics, Co-Chair of the OSA Science and Engineering Council, General Co-Chair of the Conference on Lasers and Electro-Optics (CLEO), General Chair of the LEOS Annual Meeting Program, Program Co-Chair of the OSA Annual Meeting, and Steering and Program Committee Member of the Conference on Optical Fiber Communications (OFC). Prof. Willner has 440 publications, including one book.

Joint meeting
with IEEE LEOS
Los Angeles
Chapter



Abstract

Revolutionary growth in system capacity has been fueled by wavelength-division-multiplexed (WDM) transmission. Key challenges include the maintenance of all the different wavelength signals at a high signal-to-noise ratio (SNR). In point-to-point links, even mundane topics such as changing environmental conditions can cause severe problems. However, this scenario erupts into a much greater challenge with the implementation of add/drop multiplexers and reconfigurable networking. Topics will be discussed that relate to channel-degrading effects in dynamic environments, such as the management and monitoring of chromatic dispersion, polarization-mode-dispersion, and nonlinear effects.

This Meeting

Date: Wed. Jan. 21, 2004

Social Hour: 6 PM;

Dinner: 7 PM, **Speaker:** 8:30 PM

Cost: Dinner: \$10 per person.

Speaker Only: No Charge

Location: [USC Photonics Center](#)

3740 McClintock Ave., EEB 500

Los Angeles, CA 90089-2565

(213) 740-7334

Reservations: preferably by e-mail

to the Arrangements Chair, Kevin

Liddane at kliddane@cox.net

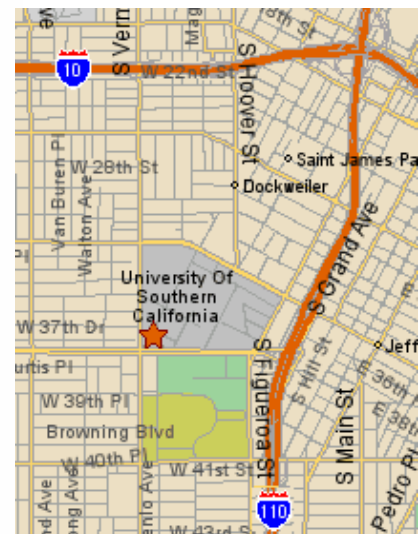
by Friday, Jan. 14 or by fax or phone at

(714) 389-1758 fax or 389-1756 phone

Dinner is Pizza & Sodas

For current updates, directions and map,

Please visit our website at www.oisc.org.





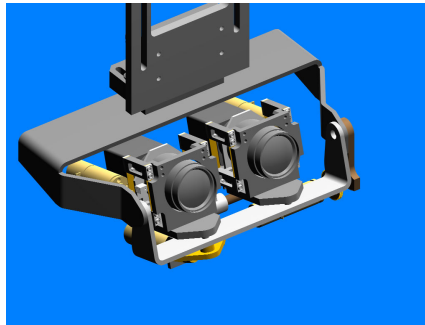
Corporate Profile

Since 1984 DMK Engineering Inc. has provided design, development and manufacturing services to the commercial, industrial, medical, motion picture, aerospace, and defense industries. Areas of expertise include optical design, electro-optics, opto-mechanics, motion control with servo and stepper motor systems, embedded microcontrollers and PCs, wireless and wired networking, analog and digital electronics, light sources, sensors, and software. We provide a wide array of services from analysis to production.

You think it – we'll build it.

One project we are currently developing is the Eyefollower gimbal for LC Technologies, Inc. of Fairfax, VA. This system provides precise 3-D positioning of a stereoscopic camera system. By measuring the corneal reflection from an infrared LED, the system can determine the gaze point with a high degree of accuracy. For more information on this product go to www.eyegaze.com.

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OSSC Educational Outreach Notice: The OSSC has been awarded \$1000 from the OSA as seed funding to begin transforming some of Dr. Murty's OPTRICKS into Public Science Center grade "Hands-on Optics" demonstration exhibits. A small OSSC team will be formed to work on this project. Contact Donn Silberman or Susan Raffensperger if you are interested in participating.

Just a reminder that OSSC Individual and Corporate Membership dues are **\$15 and \$100** respectively. Please send your payments to:

Charles Gaugh, OSSC Treasurer & Membership Chair
 Davidson Optronics, Inc.
 2223 Ramona Boulevard
 West Covina, California
 91790

It is always good to participate in National Conferences that take place locally, such as the:



February 22 – 27 2004
 Los Angeles Convention Center

Future OSSC Meetings

Date	Location	Speaker	Topic
Feb. 11, '04	Culver City	Charles V. Jakowatz, Jr. Sandia Labs	Synthetic Aperture Radar
March 10, '04	Irvine	Bruce Tromberg Beckman Laser Institute	BLI Presentation & Tour joint meeting w/ OSSD
April 24, '04 (Saturday)	Santa Ana	Discovery Science Center (tentative)	Education Outreach
May 12, '04	TBD	Dr. John T. Trauger (JPL)	"Coronagraphic Techniques for Extrasolar Planet Detection"

January 2004

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These companies provide funding to the Optical Society of Southern California, enabling the OSSC to operate. We are grateful for their support.



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Address Correction Requested