



NATIONAL ACADEMY OF ENGINEERING

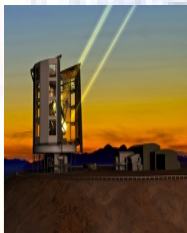
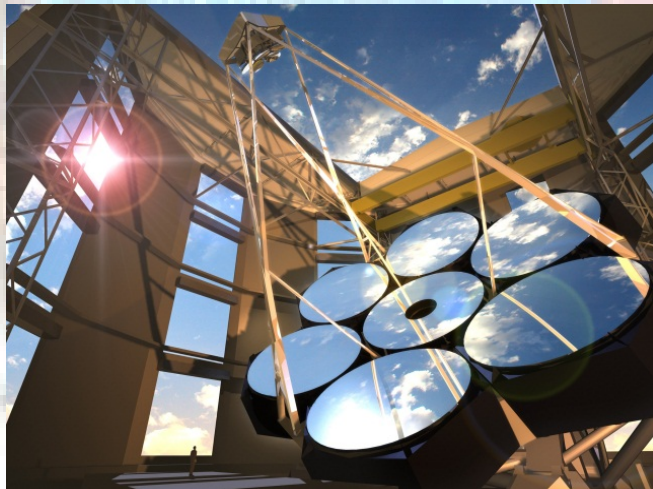
REGIONAL MEETING

May 20, 2013

12:30 – 6:00 pm

PAST, PRESENT AND FUTURE EXPLORATIONS OF ASTRONOMY, OPTICS AND LARGE TELESCOPES

plus tour
**STEWART
OBSERVATORY
MIRROR LAB**



TO REGISTER
luz@optics.arizona.edu
520-626-6959

REGISTRATION DEADLINE
May 10, 2013

No Registration Fee



COLLEGE OF
OPTICAL SCIENCES

University of Arizona, College of Optical Sciences
1630 E. University Blvd. - Auditorium 307
Tucson Arizona

LODGING ACCOMODATIONS

ALOFT TUCSON UNIVERSITY

1900 E. Speedway Blvd.

<http://www.starwoodhotels.com/aloft-hotels/property/overview/index.html?propertyID=3801>

520-908-6800 or 877-4625638

ARIZONA INN RESORT

2200 E. Elm St.

<http://www.arizonainn.com/>

520-325-1541

TUCSON MARRIOTT UNIVERSITY PARK

880 E. Second Street

<http://www.marriott.com/hotels/travel/tusup-tucson-marriott-university-park/>

520-792-4100

WINDMILL INN SUITES

4250 N. Campbell Ave.

<http://www.windmillinns.com/TUCShome.html>

520-577-0007

**Inquire about UA Rate*

UA PARKING & DRIVING DIRECTIONS

For daily or hourly pay parking, we recommend the **Cherry Avenue Garage**, just south of the College of Optical Sciences Meinel Building, and the **Second Avenue Parking Garage** near the University of Arizona Student Union Memorial Center. Both within walking distance to OSC, and both are highlighted on this [UA Parking Map](#)

For additional driving directions, please visit:

<http://www.optics.arizona.edu/about/facilities/maps-directions>

Special thanks to GMTO and UA Stewart Observatory for extending use of photo gallery images.

The University of Arizona has long been known for its optics, astronomy, and lunar and planetary research. On May 20, 2013, the NAE Regional Meeting will be held at the College of Optical Sciences, University of Arizona and will highlight some of the past, present, and future space exploration, astronomy, and large telescope research projects.

The program commences with Dante Lauretta describing the OSIRIS-REx Mission for traveling to a near-Earth asteroid, studying it in detail, and bringing back a sample to earth. Recent MacArthur Foundation "Genius Grant" winner, Olivier Guyon will describe his work finding habitable worlds around other stars, and Buell Jannuzi will discuss large telescopes designed and constructed at the University of Arizona. James Burge will discuss the next generation of ground based telescopes, and Roger Angel will describe how some of the design and mirror fabrication techniques learned making large telescopes can help in reducing the cost of solar power.

Following the lectures, a tour of the University of Arizona Steward Observatory Mirror Lab is offered where a team of scientists and engineers produce giant, lightweight mirrors with diameters of up to 8.4 meters for a new generation of optical and infrared telescopes.



JAMES C. WYANT, Site Host is

Professor Emeritus and past dean of the College of Optical Sciences at the University of Arizona. Dr. Wyant received a B.S. in physics in 1965 from Case Western Reserve University and M.S. and Ph.D. in optics from the University of Rochester in 1967 and 1968. Wyant, a former editor-in-chief of the OSA journal Applied Optics, was the 1986 president of SPIE and the 2010 president of the Optical Society of America.



THOMAS L. KOCH, co-Host is dean of the University of Arizona's College of Optical Sciences, a professor of Optical Sciences, and professor of Computer and Electrical

Engineering. Previously he held the Smith Endowed Chair of Director, Center for Optical Technologies at Lehigh University. Prior to his academic roles, he spent many years in research at Bell Laboratories, and held R&D Vice President positions at SDL, Lucent Technologies, and Agere Systems. Tom received his BA in physics in 1977 from Princeton University and his Ph.D. in applied physics in 1982 from Caltech.



C. DAN MOTE Jr., President-Elect, National Academy of Engineering and is Past-President and Regents Professor of the University of

Maryland and current Treasurer for the NAE. Mote received his B.S., M.S., and Ph.D. in mechanical engineering from the University of California, Berkeley, where he served on the faculty for 31 years and held positions as chair of the department of mechanical engineering, president of the UC Berkeley Foundation, and vice chancellor. He has received three honorary doctorates and the Berkeley Citation, similar to an honorary doctorate.

PROGRAM SCHEDULE

- 12:30 pm **Registration & Mirror Lab Tour Sign-up**
College of Optical Sciences - 3rd Floor Lobby
- 1:00 - 1:15 **Welcome & Introduction**
James C. Wyant, Site Host, Professor Emeritus UA Optical Sciences
Thomas L. Koch, co-Host, Dean & Professor UA Optical Sciences
C. Dan Mote Jr., President-Elect, National Academy of Engineering
- 1:15 - 1:40 *OSIRIS-REx Asteroid Sample Return Mission: Exploring Our Past and Securing Our Future*
Dante S. Lauretta, Professor, UA Lunar & Planetary Sciences
- 1:45 - 2:10 *Optics Tricks to Find and Study Habitable Worlds Around Other Stars*
Olivier Guyon, Assistant Professor, UA Astronomy & Optical Sciences
- 2:15 - 2:40 *Faster, Cheaper, Better: Telescope Design and Construction at the UA*
Buell T. Jannuzi, Dept. Head UA Astronomy, Director Steward Observatory
- 2:45 - 3:05 **Break**
3rd floor lobby
- 3:10 - 3:40 *Next Generation Ground Based Telescopes*
James H. Burge, Professor, UA Optical Sciences & Astronomy
- 3:45 - 4:10 *Optics for Cheap Solar Power*
J. Roger P. Angel, Regents Professor, UA Astronomy & Optical Sciences
- 4:15 - 4:30 **Mirror Lab Pre-Tour Video**
Auditorium 307
- 4:30 - 5:45 **Reception & Mirror Lab Tour - 3rd floor lobby**
Tour Group Schedule (Staggered departures/Pre-Registration required)
Group I (4:30 - 5:15 pm)
Group II (4:50 - 5:30 pm)
Group III (5:10 - 5:45 pm)
- 5:45 pm Concludes General Meeting

NAE MEMBERS-ONLY

(RSVP required)

- 6:00 pm **Business Meeting & Reception** – Welcome Remarks
C. Dan Mote Jr., President-Elect, National Academy of Engineering
OSC 8th Floor – Room 821
- 7:00 pm **Dinner** - OSC 8th Floor Conference Area 829



PROGRAM SPEAKERS



J. ROGER P. ANGEL is Regents Professor of Astronomy and Optical Sciences at the University of Arizona, where he directs the Steward Observatory Mirror Lab. He is a member of the National Academy of Sciences and the American Academy of Arts and Sciences, a Fellow of the Royal Society and a former MacArthur Fellow and a co-recipient of the 2010 Kavli Prize in Astrophysics. He founded and is CTO of REhnu Corporation. Roger Angel has developed concepts and technology for some of the most powerful astronomical telescopes, including the Large Binocular Telescope and the planned Giant Magellan Telescope. Today he is working on novel ways to harvest solar energy by focusing sunlight onto small but powerful photovoltaic cells, and also onto thermal receivers to heat liquid to be stored for nighttime generation. Both approaches are designed to use mass-produced, self-supporting glass mirrors. In combination they promise 24/7 solar electricity at a cost competitive with fossil fuel generation.



JAMES H. BURGE is Professor at the College of Optical Sciences, University of Arizona, with a joint appointment in Astronomy. He is principal investigator and technical lead for projects that develop and implement advanced technologies for building and testing large optical systems and telescope mirrors, as well as ground and space based telescopes. He is a Fellow of SPIE and OSA and the recipient of the 2011 Fraunhofer/Burley Award elected by the Optical Society, which recognizes "significant accomplishments in the field of optical engineering. He is co-chair of Product Integrity Committee responsible for overseeing NASA's James Webb Space Telescope and is Deputy Editor for Optics Express. He is the Chief Technology Officer for Arizona Optical Systems, LLC, where he provides leadership and technical expertise for manufacture of high performance optical components and systems and is President of Arizona Optical Metrology, LLC a company with focus on computer generated holograms and custom metrology solutions.



OLIVIER GUYON, an Optical Physicist and Astronomer, holds appointment as Assistant Professor with the Department of Astronomy, College of Optical Sciences and the Steward Observatory at the University of Arizona. He is also an associate member of the Faculty of Graduate Studies at the University of Victoria and a project scientist at the Subaru Telescope, National Observatory of Japan, in Hawaii. Guyon graduated from Pierre-and-Marie-Curie University (France) in 2002. In 2003, received the Daniel Guinier Award from the French Society of Physics, and in 2006 was granted a Presidential Early Career Award for Scientists and Engineers from the U.S. government — its highest award for promising young researchers. In 2012 he was awarded the MacArthur Foundation Fellowship. Guyon is a physicist who uses his expertise in optics to design telescopes that investigate some of the most compelling issues in contemporary astronomy, particularly the search for Earth-like planets outside the solar system.



BUELL T. JANNUZI is the seventh Director of Steward Observatory, Buell T. Jannuzi, succeeded Regents' Professor Peter Strittmatter as Head of the Department of Astronomy at the University of Arizona in May of 2012. The University of Arizona's Department of Astronomy and its affiliated Steward Observatory are world-leading centers for astrophysical research. Jannuzi was previously the Director of Kitt Peak National Observatory and Associate Director of the National Optical Astronomy Observatory (2005-2010) during his 17-year tenure as a member of the scientific staff of NOAO. Jannuzi earned degrees at Harvard College and the University of Arizona (Ph.D. in Astronomy). He then spent five years as a member of the Institute for Advanced Study in Princeton, NJ, and was recognized in 1993 as a future leader in the field with the award of one of NASA's prestigious Hubble Fellowships. He has served on the Board of Directors or Science Advisory Committee of numerous major ground-based and space observatories (including Gemini Observatory, Spitzer Space Telescope, Fermi Space Telescope, Large Binocular Telescope, Large Synoptic Survey Telescope, and the Giant Magellan Telescope). He has also served as President of the Board of Directors of the International Dark Sky Association.



DANTE S. LAURETTA is a Professor in the Lunar and Planetary Laboratory and the Department of Planetary Sciences at the University of Arizona. He is internationally recognized as an expert in near-Earth asteroid formation and evolution. He is the leader of NASA's OSIRIS-REx Asteroid Sample Return mission. OSIRIS-REx is the United States' premier mission to visit one of the most Potentially Hazardous near-Earth Asteroids, survey it to assess its impact hazard and resource potential, understand its physical and chemical properties, and return a sample of this body to Earth for detailed scientific analysis. This mission is scheduled for launch in 2016 and will rendezvous with asteroid 1999 RQ36 in 2018. Sample return to Earth occurs in 2023.

