Annual Meeting of the Pacific Division of AAAS
including the
Northwest and Southwest Regions of Sigma Xi, The Scientific Research Society
UNIVERSITY of SAN DIEGO, SAN DIEGO, CALIFORNIA
14 – 17 June 2016

The AAAS, Pacific Division concludes its Centennial Year Celebration with its 97th annual meeting this June at the University of San Diego, San Diego, California. Co-sponsoring the meeting will be the University of San Diego and the Northwest and Southwest Regions of Sigma Xi, the Scientific Research Society.

The Division’s Program and Special Events Committee and the local Program Committee on the USD campus have been hard at work assembling a program of first-rate scientific merit and interest. All scientists, including professors, teachers, students, and others, are invited to present the results of their research either orally or as posters at this meeting. All registrants for the meeting may attend all of the technical sessions as well as participate in the many other activities that are being planned. Some activities, notably field trips and select workshops, require advance registration and payment of additional fees. Dr. Frank Jacobitz (Department of Engineering, USD) is chair of the local planning committee for the meeting. He is being ably assisted by other committee members on the USD campus, Dr. Ron Kaufman (Associate Dean and Director, Marine Science Program), Dr. Ronn Johnson (School of Leadership and Education Sciences), Dr. Veronica Galván, (Department of Psychology) and Ms. Amy Besnoy (Science Librarian, Copley Library). Members of the

2015 – Celebrating Our Centennial Year Meetings – 2016.
San Diego and the University of San Diego

San Diego
With a near-perfect climate, 70 miles of beaches, and mountains and deserts just a short drive away, San Diego draws more than 26 million visitors each year. Known for its countless year-round outdoor activities, San Diego is packed with unique pursuits in the water, on the trails and in the sky. The University of San Diego is just minutes from sailing, windsurfing, kayaking and a host of other water sports. All of the city’s beaches are ideal for surfing, body boarding, snorkeling, or simply soaking up rays on sand warmed by the ever-present sun.

Hundreds of miles of trails and parks wind throughout San Diego County, ranging from oceanfront land to mountain pine forests, making it very easy to backpack, hike, camp or rock climb in a variety of elevations and environments. The Pacific Crest Trail, which works its way through 150 miles of San Diego backcountry in its trek from Mexico to Canada, is designated one of America’s National Scenic Trails.

San Diego has many attractions, including the world-famous San Diego Zoo and Wild Animal Park. Additionally, the 148-year-old Balboa Park is a 1,200-acre oasis in the heart of the city, complete with 15 museums, eight gardens and the acclaimed Old Globe Theatre. San Diego is also home to one of only three Olympic training centers in the nation. And its coastal waters offer an exceptional seasonal experience: a first-rate vantage point from which to witness the annual migration of gray whales from Alaskan seas to Mexican lagoons.

University of San Diego
The University of San Diego (USD) is a Roman Catholic institution of higher learning. Presently enrolling more than 8,350 students (as of Fall 2014), it is known for its commitment to teaching, the liberal arts and the formation of values and community service. The university adds depth to educa-
In one of the poster sessions at the San Francisco meeting.

**DIVISION ACTIVITIES AND STUDENT AWARDS AT THE 2015 ANNUAL MEETING IN SAN FRANCISCO**

In June 2015 the Pacific Division held its 96th annual meeting on the campus of San Francisco State University. Joining us in the meeting were the Northwest and Southwest Sections of Sigma Xi, the Scientific Research Society. Co-sponsors who contributed to make this meeting a terrific success and to whom we are most grateful were San Francisco State University (SFSU) and the California Academy of Sciences (CAS). The majority of the coffee breaks were supported by a generous donation from Dr. Sheldon Axler on behalf of the College of Arts and Sciences Dean’s office at SFSU. Money for stipends to support the attendance of K–14 teachers at the meeting was donated by Bourns, Inc., and the Bourns Revocable Trust, both of Riverside, California. We wish also to acknowledge and thank the many volunteers, students, faculty and staff, that worked mostly behind the scenes to make this meeting the huge success that it was. Finally, we wish to thank Dr. Leslie E. Wong, President of SFSU, for his generous invitation to meet again on his campus and also for the strong support he provided in helping with logistical details that both gave this meeting a home on his campus and made the meeting run so smoothly.

The technical program for the meeting included nineteen symposia, three poster sessions, seven contributed paper sessions, and four workshops. Additionally, there were three field trips that travelled all around the countryside.

Activities began Sunday with a popular field trip led by Dr. Terrence Gosliner that dealt with the natural history of Marin County.

While some were out on the field trip, others attended the workshop, *Organizing the Whyville Association for the Advancement of Science*

see DIVISION ACTIVITIES, page 6

**ANNOUNCEMENTS**

2016 is a very notable milestone in the life of the Pacific Division!

The Pacific Division of AAAS was formed as a result of the call by AAAS for help in organizing its 1915 meeting in San Francisco. The AAAS constitution was emended in 1914 to accommodate divisions. That same year, the by-laws of the Pacific Division were approved by vote of the AAAS Council. In 1915, the fledgling Division participated in the San Francisco AAAS Meeting. The following year, 1916, the Division struck out on its own by holding its first independent annual meeting in San Diego. This year's meeting brings us back to San Diego for the conclusion of our centennial year celebrations. Join us this year and be a part of our celebration marking this milestone!

**TEACHERS K - 14**

The first ten K – 14 teachers to register in advance (meeting registration received no later than 27 May 2016) for this meeting will receive, upon request, a $75 stipend to help defray their costs to attend! This stipend is not available to those who register on-site for the meeting. If requested, a $75 check will be included with the registration materials you pick up at the Pacific Division Meeting Registration Center.

**Judges Sought for Student Presentations**

Student presentation judges are being sought for both oral and poster presentations at the Division's annual meeting. Previous experience evaluating student presentations is desirable for individuals who haven’t previously judged at a Pacific Division meeting. Judges must be available for an organizing meeting Tuesday evening, 14 June, and be available to judge presentations Wednesday and/or Thursday, 15 and 16 June. For additional information, please contact Dr. Roger Christianson, 541-552-6747 or rchristi@sou.edu. If you are interested in helping with this very important aspect of the annual meeting, be sure to mark the appropriate box on the Advance Registration Form (on page 35 of this Newsletter) and you will be sent an application.
HISTORY, from page 2

Aerial view of the USD campus.

The Pacific Division has a website for students, called STUDENTS ONLY! Its address is http://associations.sou.edu/aaaspd/Students/Students.html. On it you will find links to information about:
- the AAAS, Pacific Division Alan E. Leighton Student Research Awards
- travel grants to help support students traveling to present their research at annual meetings of the Pacific Division
- the Pacific Division student oral and poster presentation awards program
- winners of previous student presentation competitions
- additional news of interest to students

Research grants of up to $750 are available to students residing in the Pacific Division’s geographical boundaries. But you must apply for this by 1 May 2016! Information can be found at http://associations.sou.edu/aaaspd/Students/StudentResearchGrants.html or click the Research Award link on STUDENTS ONLY!

Travel grants to help support student travel to the annual meeting are available....but you must apply no later than 1 May 2016! Information can be found at http://associations.sou.edu/aaaspd/Students/TravelGrants2010.html. Or click on the Travel Grant link on STUDENTS ONLY! Up to ten grants are available this year and they will be awarded based on need.

Awards of Excellence are given to students who make outstanding research presentations at the Pacific Division’s annual meetings. Awards include money and certificates. But you must present your own research in order to be eligible to receive one! Information can be found at http://associations.sou.edu/aaaspd/Students/StudentAwards.html or click the Student Awards link on STUDENTS ONLY!

USD Students

Though the beach is nearby, USD is a serious academic institution. And while the campus itself is stunning, the people truly make the difference. For Fall 2015, more than 13,000 candidates vied for 1,100 freshman openings. The median incoming freshman this past Fall held a 3.84 GPA and an had a 1208 SAT score. Yet each student is unique and selected on expressions of diversity, leadership, service, talent, and essential human character.

Of great significance to USD students are small class sizes; great, accessible faculty; and fantastic lab facilities. Students choose from more than 78 undergraduate and graduate degree programs in academic divisions, including the College of Arts and Sciences and the schools of Business Ad-
ministration, Leadership and Education Sciences, Law, and Nursing and Health Science. The Joan B. Kroc School for Peace Studies, in which this meeting will take place, was inaugurated in 2007.

**Natural Sciences at USD**

The natural sciences at USD include four departments: Biology, Chemistry and Biochemistry, Physics and Biophysics, and Environmental and Ocean Sciences. Curricula in the sciences are centered on the belief that students learn best when theoretical concepts are combined with hands-on experience. Students in the sciences take numerous lab and field courses, which provide opportunities to learn useful techniques and participate in the scientific process. Many students carry out research and perform internships that complement their formal course work. Interdisciplinary collaborations are common among faculty and students in different departments.

Interdisciplinary interactions are enhanced by the inclusion of all four science departments in the Donald P. Shiley Center for Science and Technology, which opened in 2003. The Center contains classrooms, offices, and modern labs that are used for teaching as well as faculty and student research. It is equipped with state-of-the-art instrumentation and equipment, including 500 MHz and 400 MHz nuclear magnetic resonance systems, a high pressure liquid chromatography – mass spectrometer, gas chromatography – mass spectrometry instruments, atomic analyzers, a nutrient analyzer, a bomb calorimeter, and a laser particle sorter. Microscopic resources include, among the usual assortment of compound and dissecting microscopes, scanning and transmitting electron microscopes and an atomic force microscope.

Several facilities were constructed for specialized functions, including a seawater system with two 2,000 gallon tanks, environmental chambers, aquarium room, a laser laboratory, and a greenhouse with five rooms with independent climate controls. Research and teaching collections include terrestrial and marine vertebrates, marine invertebrates, insects and an herbarium. A 16-foot research vessel is available for marine science investigations.

**SYMPOSIA BEING ORGANIZED FOR THE ANNUAL MEETING**

Descriptions start on page 22.

- Current Understanding and Data Gaps for Bahía de los Ángeles, An International Biosphere Reserve
- Bahía de San Quintín: The Status, Threats, and Solutions for One of the Last Intact Coastal Lagoons in Western North America
- Not Just a Walk in the Park: Ecology and Education in Mission Bay, San Diego
- How Ocean Acidification and Ocean Warming Could Influence the Functional Morphology and Ecology of Intertidal Organisms
- Particles in the San Diego Atmosphere: Reactions, Properties, Climate, and Health
- Recent Advances in Turbulence Research: Experiments, Theory, and Computations
- Scientific Maker Symposium and Exchange
- United States World’s Fairs and Expositions: Seeing Fairs as More than Fun Places to Visit
- Library Science Symposium: The Evolving Library
- Evaluating Return on Investment and Assessing Student Learning for Non-traditional Teaching Activities
- Mentoring and Deeper Learning in STEM Education
- Limits to the Second Law of Thermodynamics
- Quantum Retrocausation III
- Law Enforcement with Ethnoracially Diverse Communities in the 21st Century using Forensic Psychological Science: A Culturally Responsive International Paradigm

**LIST CONTINUES ON PAGE 6**
2015 Alan E. Leviton AAAS, Pacific Division Student Research Award Winner Announced

ASHLAND, Oregon – Ms. Sheree Watson, Institute of Environmental Health, Oregon Health and Science University, Portland, Oregon, was announced as the winner of the 2015 Alan E. Leviton AAAS, Pacific Division Student Research Award competition. Ms. Watson was awarded a grant of $706 for her project, “Role of Microbes in the Restoration of Tidal Wetlands in the Columbia River Estuary.”

When contacted with the good news, Ms. Watson replied, “Thank you for the opportunity afforded through the AAAS, Pacific Division Alan E. Leviton Student Research Award. I was surprised and honored that you awarded my research proposal.” Look for Ms. Watson’s report on her project funded by this grant in a future edition of this Newsletter.

Don’t forget! Applications are being accepted through 5:00 pm Pacific Time for the 2016 Research Award competition. Additional information about this award may be found at http://associations.sou.edu/aaaspd/Students/StudentResearchGrants.html and also on page 4 of this Newsletter.

SYMPOSIA, continued...

Conducting Mental Health Research in the Community Setting for the Benefit of Underserved Populations
Boise Extravaganza in Set Theory (BEST)
Philosophers of Biology Engaging the Biosciences
At the Crossroads of Global Water Issues: An Interdisciplinary Perspective
Climate Change Communication: Getting the Message Across to Diverse Audiences

Descriptions start on page 22.
In the natural environment, there is considerable spatial heterogeneity in temperature. Since phenologies of many organisms are influenced by the temperature, thermal heterogeneity in the environment sometimes leads to seasonal asynchrony of organisms across habitat patches. Phenological asynchrony of organisms may prolong and strengthen certain species interactions which otherwise would be ephemeral and weak.

The mayfly *Ephemerella maculata* rears and emerges from sunlit mainstem rivers, flies into dark, unproductive tributaries, oviposits, and dies. While each adult *E. maculata* lives only for a few days, the migration of adult *E. maculata* to tributaries lasts for about a month due to their asynchronized emergence from the mainstem. Their mass migration subsidizes tributary predators that would otherwise be food-limited. A field manipulative experiment has shown that the one month long resource subsidy by *E. maculata* in summer significantly increases the growth of juvenile steelhead (Uno and Power, unpublished). We hypothesized that spatial heterogeneity of water temperature in the mainstem river causes the spatial variation in the emergence timing of *E. maculata*, leading to asynchronous *E. maculata* adult migration to tributaries, and that the prolonged resource subsidy increases the trophic efficiency, and consequently the total growth of juvenile steelhead trout over the summer.

In the sunny channel of the South Fork Eel River in Northern California, we have detected up to 5° C differences in daily maximum temperature within a 300 meter reach during summer low flow. In 2014, I investigated the effect of the spatial variation in the water temperature in the mainstem river on the emergence timing of *E. maculata* by incubating 600 individual *E. maculata* nymphs in flow-through buckets placed in various parts of the mainstem river channel with different temperature, and monitoring when *E. maculata* emerged from the buckets. *E. maculata* nymphs were naturally distributed at all reaches where we conducted the experiment, and the nymphs used for the experiment were captured at each location. *E. maculata* incubated in warmer reaches emerged 1-3 weeks earlier than the ones incubated in cooler reaches of the mainstem. At each location the emergence lasted approximately two weeks, while overall emergence from the mainstem was twice as prolonged, due to asynchronous temperature-mediated emergence. The adult *E. maculata* migration was observed in the tributaries for four weeks for the same period while *E. maculata* emerged from the buckets, indicating that the adult *E. maculata* migrating into tributaries come from various parts of the mainstem with various temperature regimes, earlier from warmer reaches and later from cooler reaches.

The effect of the subsidy duration on the growth of juvenile steelhead trout in tributaries will be examined by a large scale field experiment in summer 2015. We predict that the temporal extension of the subsidy period increases the efficiency of trophic transfer to juvenile steelhead trout and other recipient consumers in tributaries. The linkage of the spatial heterogeneity to the temporal duration of subsidies by the phenology of mobile organisms is infrequently quantified, but is likely of general importance. Dynamic consequences of multi-scale spatial heterogeneity in temperature and other environmental controls over ecological interactions in natural landscapes need more attention.

The field rearing experiment described above was supported by the funding by Alan E. Leviton Student Research Award from AAAS, Pacific Division. I thank Alan E. Leviton and the AAAS Pacific Division for the financial support for this project.

Photos provided by Ms. Uno.
and Political Sciences. Topics in the poster session included the areas of Cell and Molecular Biology; Chemistry and Biochemistry; Earth Sciences; Ecology, Environmental Sciences and Sustainability; Evolution, Organismal Biology, and Biodiversity; General and Interdisciplinary Studies; Materials Science; Physics; and Social, Economic and Political Sciences. Additionally, there were two workshops, *Communicating Your Science to Everyone*, organized by Dr. Dennis F. Magnan (Director, Chalk Talk Science Project, Santa Rosa, California) and *Rethinking Design Strategies by Adopting Nature’s Principles*, organized by Mss. Shanti Balaraman and Pavan Raj Gowda (Green Kids Now, Inc., Freemont, California).

Nestled between all of the above sessions on Monday was the noon public plenary lecture, *The Science Denial Playbook: What Evolution, Climate Change, Vaccine Safety and Tobacco Risks All Have in Common*, presented by Dr. Ann Reid (Executive Director, National Center for Science Education).

Monday evening was a very special treat, as the California Academy of Sciences opened its doors to the Pacific Division, making the facility available to all meeting attendees and their guests as guests of the Academy. The evening began with attendees congregating in the planetarium where Dr. Richard A. Cardullo, AAAS, Pacific Division President, presented the Division’s Presidential Address, *Multiplying and Dividing in the Anthropocene: The Science of Human Population Growth and Control*. Following Dr. Cardullo’s address was a reception hosted by the Academy that included culinary delights such as Curry Leaf Shrimp with Coconut Sauce, Lamb Brochettes with Hibiscus Glaze, Almond Gazpacho Shooters, Miniature Ice Cream Cones, Walnut Baklava with Pomegranate Molasses, Chocolate and Almond Butter Cups, along with beer, wine, and soft drinks. During the evening, people were not only able to wander the exhibits of the institution, but there were also several “back-stage” tours highlighting various aspects of the Academy, including the aquarium, the gem vault, the herpetology collections and the anthropology collections. The Division wishes to thank Dr. Jonathan A. Foley, Executive Director of the CAS, for opening the doors of the Academy and for sponsoring this wonderful evening, including the reception, for the Pacific Division.

Tuesday morning began bright and early for some meeting attendees as Sigma Xi sponsored an early morning breakfast for members. Technical sessions continued on Tuesday, with additional thought-provoking symposia: *Theory, Experiment, and Computations: A Synergistic Approach to Research*, organized by Drs. C. Mark Maupin (Colorado School of Mines) and Owen M. McDougal (Boise State University); *Coping with Climate Calamities*, organized by Dr. Robert L. Chianese (California State University Northridge); the continuation of *Galápagos 2015: Science, Conservation, and History in the 180 Years Since Darwin*; *Advancing Green Infrastructure for Habitat and Coastal Resilience*, organized by Drs. Katharyn Boyer (Romberg Tiburon Center, San Francisco State University) and Michael C. Vasey (U.S. Geological Survey, Menlo Park); *Library Science: Theory and Practice of Librarianship*, organized by Ms. Crystal Goldman (Geisel Library, University of California San Diego), Dr. Frank Jacobitz (University of San Diego), and Ms. Amy Besnoy (Copley Library, University of San Diego); the continuation of the *Boise Extravaganza in Set Theory (BEST)*; *Biodiversity of the Coral Triangle*, organized by Drs. Terrence Goslner, Rich Mooi, and Meg Burke (California Academy of Sciences), *Recent Advances in Pharmacology and Toxicology*, organized by Drs. Kristen Mitchell (Boise State University) and Karen Parker (Chrysopyleae, Los Alto, California); *3D Printing Arduinos, and Other Open Source Tech in STEAM Learning*, organized by Ms. Joan Horvath and Mr. Rich Cameron (Nonscriptum, LLC, Pasadena, California); *Blue Carbon and Global Change: Mechanisms, Modeling, and Management*, organized by Drs. Tomoko Komada (Romberg Tiburon Center, San Francisco State University) and Lisamarie Wyndham-Myers (U.S. Geological Survey, Menlo Park); and *Web of Causation: Using Multiple Perspectives to Study Local Health Disparities*, organized by Drs. Leticia Márquez-Magaña (San Francisco State University) and Kirsten Bibbens-Domingo (Center for Vulnerable Populations, San Francisco, California).

A third poster session took place Tuesday morning. Featured were Agriculture, Food, and Renewable Resources; Anthropology and Archaeology; Atmospheric and Hydrospheric Sciences;
Pacific Division’s Executive Committee and Council are also involved in developing the program to ensure that it is of the highest quality.

This Newsletter contains a preliminary description of the scientific program, a call for abstracts, directions for preparation of abstracts, and information about registration, housing, transportation, special events, field trips, and symposia.

Following is a list of the Pacific Division sections that are sponsoring sessions at the meeting. The names and addresses of session chairs are found starting on page 30 of this Newsletter.

**Societies and Pacific Division Sections**

**Sponsoring Sessions at the Riverside Meeting**

Sigma Xi, The Scientific Research Society
Agriculture, Food and Renewable Resources
Anthropology and Archaeology
Atmospheric and HydrospHERic Sciences
Cell and Molecular Biology
  *(including medical and dental research in these areas)*
Chemistry and Biochemistry
Computer and Information Sciences
Earth Sciences
Ecology, Environmental Sciences and Sustainability
Education (Science and Technology)
Engineering, Technology and Applied Sciences
Evolution, Organismal Biology and Biodiversity
General and Interdisciplinary
History and Philosophy of Science
Materials Science
Mathematics
Physics
Psychology
Science and the Arts and Humanities
Social, Economic and Political Sciences
  *(including health services)*

**Registration**

All persons planning to attend the meeting should use the Advance Registration Form on page 35 in this Newsletter to pre-register in order to receive the best registration rate. On-site registration will be available, but with higher fees. Advance registration fees (through 22 April) for the full meeting are $105.00 for professionals; $52.50 for retirees/emeritus, current post-docs, and students¹; and $35.00 for non-presenting spouses/family members of registrants and unemployed individuals. K–12 and community college teachers are encouraged to attend the meeting for a reduced professional registration fee of $52.50. One-day professional registration for non-presenters/planners is available for $70.00. Presenters and program organizers registering in the professional category may purchase a full-meeting professional registration at the discounted rate of $70.00. To be eligible for this discount, the individual must have submitted an abstract for presentation at the meeting that has either been approved or is pending approval, be listed as an organizer or co-organizer of a program, or be leading a field trip. Be sure to include this information in the appropriate space on your registration form. After 22 April, higher registration fees will be charged, as indicated on the Advance Registration Form. Beyond 27 May, on-site registration fees will be charged for both pre-meeting and on-site registrations. On-site registration fees for the full meeting are: professional, $135.00; program planners/presenters, $90.00; K–12, community college teachers, post-docs, students, retirees/emeritus, and unemployed $67.50; non-presenting/planning spouses and/or family members and unemployed individuals, $45.00. One-day on-site professional registration for non-presenters/planners will be $90.00. Note that if you attend more than one day of the meeting, you must pay the full registration fee.

The first ten K–12 and community college instructors that register in advance (by 27 May) for this meeting will receive, upon request, a $75.00 stipend to help defray their expenses to attend the meeting. The stipend is not available to teachers who register on-site. Note that to receive the stipend you must check the appropriate box on the Advance Registration Form.

Students have the opportunity to apply for travel awards to help defray their costs for the meeting. See page 4 of this Newsletter for additional information.

Field trips: Pre-registration for all field trips is required due to limited seating in the vehicles and the need to inform some destinations of the number of people arriving. If you are interested in one or more of the excursions, it is recommended that you register early. At least one member of a family group requesting field trip reservations must be a paid meeting registrant. Participants who are not registered for the meeting will be charged a one-time $10 field trip registration fee in addition to the fee for the field trip.

Advance Registrations Form and accompanying payment may
Education; and Psychology. Two contributed paper sessions included topics from Agriculture, Food, and Renewable Resources; Ecology, Environmental Science, and Sustainability; Education; Materials Science; Physics; and Psychology. The noon plenary lecture Tuesday was Sustainability at Scale: How Do We Manage Planetary Resources and Risks for the Future?, presented by Dr. John Foley (Executive Director, California Academy of Sciences).

Tuesday evening was the Division’s annual banquet, which featured a short program that included the announcement of 48 sectional and division-wide student awards. Please turn to page 10 in this Newsletter for more details, photos, and names of the award winners.

Technical sessions continued on Wednesday with the following engaging symposia: a continuation of Galápagos 2015; a continuation of Boise Extravaganza in Set Theory (BEST); Hot and Cool Bugs: Energetics and Thermal Tolerances of Insects in an Ecological Context, organized by Drs. Jonathan Stillman (Romberg Tiburon Center, San Francisco State University) and Caroline Williams (University of California, Berkeley); Advances in Human Evolutionary Studies: The Fossil and Genetic Evidence, organized by Dr. Zeray Alemseged (California Academy of Sciences); and Ecological and Evolutionary Factors Driving the Emergence of Vector-Borne Diseases, organized by Dr. Andrea Swei (San Francisco State University).

Also on Wednesday was the well-attended workshop, An Introduction to Grant-Writing for Foundations for Those in the Sciences, social Sciences, Education, and the Humanities, organized and led by Dr. Peter Kraus (J. Willard Marriott Library, University of Utah).

Last but not least, two field trips took place on Thursday. One, led by Dr. Karina Nielson, Director of the San Francisco State Romberg Tiburon Center for Environmental Studies, included a hike that explored the upper elevations of the Tiburon Peninsula, culminating at the Romberg Tiburon Center. The second field trip, led by Dr. Michael Vasey, San Francisco State and Manager of the San Francisco Bay National Estuarine Research Reserve, went to China Camp State Park and focused on the Park’s special ecological and historical features.

As has been demonstrated above, the programs of the meeting offered great variety, depth of content, and opportunities for networking among the participants.

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**Divisional Student Presentation Awards**

**Laurence M. Klauber Award** – Brittany Cannon (Boise State University, Boise, ID), *Excitonic AND Logic Gates Configured onto Self-Assembling DNA Nanobreadboards*.

**Geraldine K. Lindsay Award** in the Natural Sciences – Jacob Cecala (Department of Biology, California State Polytechnic University, Pomona, CA), *Bee Visit Frequency and Time of Day Effects on Cumulative Pollen Deposition in Watermelon*.

**Best Poster Award** – Jessica Hebert (Department of Pathology and OB/GYN, Oregon Health Science University, Milwaukee, OR), *Increased Maternal Angiotensinogen Expression and Male Fetal Gender Affect Placental Size and Capillary Density*.

**Presidents Award** – Vikrant Sharma (Jesuit High School, Portland, OR), *Automated Software Development and Optimization*.

**Rita W. Peterson Award in Science Education** – Ashley Ebbert (Department of Psychology, Arizona State University, Tempe, AZ), *Antecedents and Outcomes of Attachment Style from Middle School to High School*.

**AAAS: Robert I. Larus Travel Award** – Katherine Sheu (Department of Human Genetics, University of California, Los Angeles, CA), *Examining the Role of DNA Methylation in Naive Pluripotent Stem Cells*.

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**Sectional Student Presentation Awards**

**Combined Sections of Education**

**General and Interdisciplinary Studies**

**Social, Economic, and Political Sciences**

FIRST PLACE: Laura K. Frutos (The Green Neuroscience Laboratory, Neurolinx Research Institute, Chula Vista, CA), *Cleaning up Brain Imaging Using Synchrotron X-Ray Fluorescence*.

SECOND PLACE: Kimi Grzyb (Department of Environmental Sciences, Oregon State University, Corvallis, OR), *Determining Essential Components of a College-level Bioenergy Curriculum Using the Delphi Technique*.

HONORABLE MENTION: Shy Chaplin, Henson Germain, and Patricia Matus (Department of Biology, Las Positas College, Livermore, CA), *Effect of...*
WHAT DO YOU AND THOMAS EDISON HAVE IN COMMON?

AAAS.

By investing in AAAS you join Thomas Edison and the many distinguished individuals whose vision led to the creation of AAAS and our world-renowned journal, Science, more than 150 years ago.

Like Edison, you can create a legacy that will last well into the future through planned giving to AAAS. By making AAAS a beneficiary of your will, trust, retirement plan, or life insurance policy, you make a strong investment in our ability to advance science in the service of society for years to come.

To discuss your legacy planning, contact Juli Staiano, Director of Development, at (202) 326-6636, or jstaiano@aaas.org, or visit www.aaas.org/1848 for more information.

“I feel great knowing that I will leave behind a legacy that will be channeled through the AAAS. It also means a lot to me to be able to honor my late parents, too.”

—PETER ECKEL
Member, 1848 Society and AAAS Member since 1988

Visit us at http://pacific.aaas.org
Double-Dipping on Abundance of Bacteria In Various Food Mediums.

Combined Sections of Materials Science

Physics

FIRST PLACE: Brittany Cannon (Boise State University, Boise, ID), Excitonic AND Logic Gates Configured onto Self-Assembling DNA Nanobreadboards.
SECOND PLACE: Sutinee Sujittosakul (Department of Chemistry and Materials Engineering, California State Polytechnic University, Pomona, CA), The Study of Surface Phases on Aluminide Coatings Using X-Ray Diffraction.
THIRD PLACE: Bradley Stuart (Department of Chemistry and Materials Engineering, California State Polytechnic University, Pomona, CA), Corrosion of Nickel-Chromium Alloys in a Molten Eutectic Salt Environment.
HONORABLE MENTION: Rukmini A. Ravi (Chaffey College, Claremont, CA), Mechanical Characterization of Hydrogels.
HONORABLE MENTION: Kevin Myhro (Department of Physics and Astronomy, University of California, Riverside, CA), Quantum Hall and Electric Field Effects in Bilayer, Trilayer and Tetralayer Graphene.

Anthropology and Archaeology

FIRST PLACE: Elaine M. Burke (Department of Integrative Biology, University of California, Berkeley, CA), Mycobacterium tuberculosis in Prehistoric California: A Review of Evidence and Paleoepidemiological Comparisons of Impacted and Related Populations.
THIRD PLACE: Julie Ding (Department of Integrative Biology, University of California, Berkeley, CA), Facial Shape in Trigonocephaly: A Metric and Geometric Morphometric Assessment.
HONORABLE MENTION: Young Hoon Oh (Department of Anthropology, University of California, Riverside, CA), How Mountains Think: Sherpa Intersubjectivity with Animals, Forest, and Himalayan Peaks.

Cell and Molecular Biology

FIRST PLACE (Tie): Jessica Hebert (Department of Pathology and OB/GYN, Oregon Health Science University, Milwaukee, OR), Increased Maternal Angiotensinogen Expression and Male Fetal Gender Affect Placental Size and Capillary Density.
FIRST PLACE (Tie): Katherine Sheu (Department of Human Genetics, University of California, Los Angeles, Cerritos, CA), Examining the Role of DNA Methylation in Naïve Pluripotent Stem Cells.
THIRD PLACE: Tavit J. Dunnsiri (Department of Chemistry, University of California, Los Angeles, CA), A New Approach for Triple-Negative Breast Cancer Therapy.
HONORABLE MENTION: Chelsea Mueller and Lauren Whitney (Department of Cell Biology, Whitworth University, Spokane, WA), Eosinophil Levels in Clydesdales as a Measure of Anthelmintic Efficacy.

Chemistry and Biochemistry

FIRST PLACE: Holland J. Page (Department of Chemistry, San Francisco State University, San Francisco, CA), Predicted Mechanism for Domain Movement Between Two Conformational States of the Mycobacterium Tuberculosis Drug Target FAA32 Enzyme.
SECOND PLACE: Abraham King Cada (Department of Chemistry, San Francisco State University, San Francisco, CA), Photolysis of Caged Dioxygen in Low-Temperature Magnetic Circular Dichroism (MCD) Studies of Hemoglobin.
THIRD PLACE: Wuliang Zhang (Department of Chemistry, University of Michigan, Ann Arbor, MI), Synthesis, Characterization and PEGylation of pH Sensing Hydrogel Nanoparticles.

Computer and Information Sciences

FIRST PLACE: Vikrant Sharma (Jesuit High School, Portland, OR), Automated Software Development and Optimization.

Ecology, Environmental Sciences, and Sustainability

FIRST PLACE: Jacob Cecala (Department of Biology, California State Polytechnic University, Pomona, CA), Bee Visit Frequency and Time of Day Effects on Cumulative Pollen Deposition in Watermelon.
SECOND PLACE: Sidhaant Shah, Kyla Wilson, and Christopher Gonneman (Institute of the Environment and Sustainability, University of California, Los Angeles, CA), Comparison of Biodiversity of Flora and Fauna Between Habitats Across a College Campus.
THIRD PLACE: Raul Correa and Raziq Noorali (Science Department, College of the Desert, Palm Desert, CA), A Rapid Inexpensive Assay for Pb in Oyster-Shell-Derived Dietary Supplements.

Engineering, Technology, and Applied Science

FIRST PLACE (Tie): William L. Dow (Shiley-Marsh School of Engineering, University of San Diego, CA), How Mountains Think: Sherpa Intersubjectivity with Animals, Forest, and Himalayan Peaks.
Please note: Requests for refunds must be in writing and received in the Pacific Division office no later than 10 May 2016. No refunds will be granted beyond this date. A $15 handling fee will be applied. An additional 3.5% deduction will be applied to the total amount for credit card refunds.

**ON-CAMPUS MEETING HOUSING**

A limited number of rooms in Maher Hall campus housing are available for participants at this meeting. Individual rooms in Maher each have two beds and can accommodate one or two people. Each room has its own bathroom. Included in the basic housing package for three nights (Tuesday, Wednesday, and Thursday) is a meal card loaded with $30 which can be used on campus to purchase breakfast or other food. Included in the basic housing package for four nights (Tuesday, Wednesday, Thursday, and Friday) is a meal card loaded with $40 which can be used on campus to purchase breakfast or other food. Food will be available at several locations on campus. There is no refund for unused money on the card.

Additional nights stays in Maher, both pre- and post-meeting, are available but must be purchased in conjunction with a three- or four-night package. Extra nights do not include a meal card with additional money on it.

Please refer to page 34 in this Newsletter for details on pricing of housing packages and extra nights.

To apply for housing in Maher Hall, fill out the form on page 34 of this Newsletter. Please note that by applying for on-campus housing, you are agreeing to pay any additional fees that are assessed by USD to the Pacific Division relating to your stay in Maher, such as lost keys, lost meal cards, use of “additional charge” facilities, fines, etc. If you are parking a car on campus while staying in Maher, you will need to purchase a parking permit, which is $5 per day or $25 per week.

**OFF-CAMPUS MEETING HOUSING**

There are no hotels adjacent to or really close to the USD campus. The Division has, however, contracted for special meeting rates with two hotels that are fairly close to campus, the Days Hotel on the I-8 Hotel Circle (about three miles from USD) and also the Four Points by Sheraton (formerly a Hampton Inn and about one and three-quarters mile from USD). Both hotels offer limited shuttle service to USD and back for registrants of our meeting. If you’d rather stay downtown or in some other part of San Diego, we suggest you take advantage of hotel search engines such as Hotels.com, Priceline.com or Expedia.com in order to find the best deals.

Make your reservations for off-campus housing directly with the hotel of your choice. Note that the AAAS, Pacific Division offers the above hotels without endorsement for any specific commercial enterprise.

Information about campus housing and also contracted housing at the Days Hotel and Four Points by Sheraton, including such things as contact information, web links and links for reservations, are available on this Division web page: http://associations.sou.edu/aaaspd/2016SANDIEGO/Housing16.html.

**FOOD ON CAMPUS**

The USD campus has several locations where food may be purchased. The most convenient is Torero Tu Go, a food truck that is expected to be situated in front of our meeting site, the Kroc Institute for Peace and Justice (#12 on the campus map). During summer hours, this truck will be available for lunch purchases Monday – Friday.

Other on-campus food locations include:

- La Gran Terraza, located on the second floor of the University Center (#33 on the campus map), offers a two to three course ‘business lunch’ prix fixe buffet in addition to the regular a la carte menu.
- Pavilion Dining, located on Level 1 of the Student Life Pavilion (#34 on the campus map), offers a variety of choices including Classical American, authentic Mexican, authentic Chinese, traditional Vietnamese and Thai dishes, etc.
- Tu Mercado, located on Level 2 of the Student Life Pavilion (#34 on the Campus Map), offers a grocery market, deli and espresso bar.

**TRAVEL TO USD**

**Coming from the North:**

- Driving south on I-5 South, exit Sea World Dr./Tecolote Rd.
- Proceed left at stoplight toward Morena Blvd.
- Turn right on Morena.
- Turn left on Napa.
- Turn left on Linda Vista Rd.
- Travel to the second stoplight to USD’s east entrance, turn left and enter campus.

See ANNUAL MEETING, page 16
San Diego, CA), *Comparison of the Microcirculation in the Human Conjunctiva in Healthy and Diabetic Patients.*

**FIRST PLACE (Tie):** Cory Gaines (Department of Chemical and Materials Engineering, California State Polytechnic University, Pomona, CA), *A Diffusional Model of Aluminide Coatings*

**THIRD PLACE:** Harrison Daniel Schmachtenberger (Shiley-Marcos School of Engineering, University of San Diego, San Diego, CA), *Visualization of Flow Structures in Turbulent Shear Flows.*

**HONORABLE MENTION:** Travis Voorhees (Department of Chemical and Materials Engineering, California State Polytechnic University, Pomona, CA), *Evaluating the Environmental Stability of a New Class of Titanium Alloys in Simulated Marine Environments.*

**Evolution, Organismal Biology, and Biodiversity**

**FIRST PLACE:** Benedict Abdon (Department of Biology, San Francisco State University, San Francisco, CA), *Imaginal Discs Modulate Ecdysteroid Expression in Response to Irradiation Damage in Manduca sexta.*

**SECOND PLACE:** Laura M. Melroy (Romberg Tiburon Center for Environmental Studies, San Francisco State University, San Francisco, CA), *Stars: Where Are They Now? Delineating Species Boundaries In Space and Time for the Leptasterias Genus.*

**THIRD PLACE:** Tiffany Hong (Department of Biology, San Francisco State University, San Francisco, CA), *Characterizing Prothoracicotropic Hormone Response to X-ray Tissue Damage in Manduca sexta Larvae.*

**Mathematics**

**FIRST PLACE:** Luke Sereafin (Department of Mathematical Sciences, Carnegie Mellon University, Pittsburgh, PA), *Cardinal Invariants of Generalized Continua.*

**Psychology**

**FIRST PLACE (tie):** Ashley Ebbert (Department of Psychology, Arizona State University, Scottsdale, AZ), *Antecedents and Outcomes of Attachment Style from Middle School to High School.*

**FIRST PLACE (Tie):** Cori Tergesen (Department of Psychological Sciences, University of San Diego, San Diego, CA), *Mediating Variables of Stress Hormones in College Students.*

**THIRD PLACE:** Eric Jacobs and JoJo Y.K. Lee (School of Leadership and Education Sciences, Clinical Mental Health Counseling Program, University of San Diego, San Diego, California), *Group Treatment and Psychopathology: Building Community Capacity via Culturally Responsive Mental Health Services.*
Share your expertise, creativity, and devices
at the AAAS, Pacific Division’s first-ever
SCIENTIFIC MAKER EXHIBIT AND SYMPOSIUM

Thursday, 16 June 2016
at the Pacific Division’s annual meeting
University of San Diego • San Diego, California

Scientific Maker Exhibit 10:00 a.m. – 12:30 p.m. in the Joan B. Kroc Institute for Peace and Justice

It is more feasible to create your own lab equipment than ever before with the advent of 3D printing, low-cost Arduino sensors and other “maker” technologies. It is also possible to have citizen scientist collaborators who cannot only take data for you, but follow open-source plans to create their own equipment. Are you one of the pathfinders that has actually done this? If so, please consider bringing your creation to San Diego for the AAAS, Pacific Division’s first-ever Scientific Maker Exhibit. Group exhibits are welcome. Objects that are the subject of work in progress or recent crowdfunding campaigns or equivalent open-source projects are encouraged. There is no charge for space, but all participants must register for the meeting. Please follow the instructions below in order to submit your application to be a part of this exciting event! Note that display space is limited and acceptance of objects for display will be determined solely by the staff and/or representatives of AAAS, Pacific Division based on quality and scientific merit of the proposed display. Participants take sole responsibility for the safety of their displays. The deadline for submission of an application is Friday, 22 April 2016. Applicants will be notified soon thereafter of the status of their application.

Scientific Maker Symposium 1:00 p.m. – 5:00 p.m. in the Joan B. Kroc Institute for Peace and Justice

Scientists have always been forced to create a lot of their equipment, but for major discoveries typically large capital budgets have been needed. Scientists often have to design their protocols to fit the equipment, but suppose it could be the other way around? Suppose you could put up plans for instrumentation and have people all over the world build something with which to collect data for you. This session will have two parts. First, individuals who have succeeded in developing DIY instrumentation will talk about their successes. Then, we will explore some of the issues that this brings up and the organizations that are springing up to manage safety and other issues that arise when science is performed outside the traditional path. If you are interested in making a presentation as part of this symposium, please contact Ms. Joan Horvath, joan@nonscriptum.com, in order to discuss your idea(s) and how your presentation would fit into the program. Information on abstract creation and submission may be found starting on page 17ff. of this Newsletter. The deadline for the submission of abstracts for this symposium is 1 April 2016. All abstracts must be prepared following the directions in this Newsletter, and sent directly to Ms. Horvath, who is organizing the program.

Instructions to apply for a space to display a device in the Maker Exhibit.

Please provide the following information as a Word (.doc or .docx) or .rtf document, attached to an email sent to Ms. Joan Horvath (joan@nonscriptum.com) and copied to Dr. Roger Christianson (rchristi@sou.edu).

1. Full name, institution, address, telephone number, and email address.
2. Brief title for the object you wish to display.
3. Brief summary of what this object is about.
4. Statement of why this object should be part of the exhibit.
5. Specify whether you need table and/or floor space for your object. All parts of your exhibit must be free-standing; there will be no back-drop available.
6. Approximately how many square feet of space does your entire exhibit require?
7. Please specify any electrical needs of your object. Only 120 vac is available, with a maximum 5 amp draw.

Notes:
1. Everyone whose object is accepted for this maker exhibit will need to have a Release of Liability form filled out, signed, and on file with the AAAS, Pacific Division prior to the start of the meeting.
2. All objects are subject to a safety inspection at least 30 minutes prior to the start of the Exhibit. Staff of the AAAS, Pacific Division and/or staff of the University of San Diego (USD) retain the right to remove from the exhibit at any time any object that fails the safety inspection or is deemed unsafe or a danger in any way to people or the physical plant of USD.
Science and the Arts and Humanities
FIRST PLACE: Merilee Atkinson (California Center for Land and Water Stewardship, California State Polytechnic University, Pomona, CA), *Park User Perception and Preference: Understanding Sustainability Preferences and Use Patterns of Private and Public Landscapes in a Case Study of Snow Creek Park, Walnut, CA.*

**EXECUTIVE COMMITTEE AND COUNCIL MEETINGS**

The Division’s Executive Committee met on Saturday, 13 June. At the meeting, chaired by Division President Dr. Frank Jacobitz in Dr. Richard Cardullo’s absence, Dr. Roger G. Christianson, Pacific Division Executive Director, reported on Division activities that had occurred since the last Executive Committee meeting and also reviewed Division finances. Final plans for the San Francisco meeting were discussed, as were preliminary plans for the 2016 meeting in San Diego, California. Also discussed were options for the 2017 meeting. The Executive Committee reviewed recommendations of the Presidential and Council Nominating Committees, urging Dr. Owen McDougal, chair of the Council Nominating Committee, to forward his committee’s recommendations for the two Council at-large and two Executive Committee positions to the full Council for nomination. The Executive Committee also voted unanimously to forward the name of Dr. Matthew James (Department of Geology, Sonoma State College, Rohnert Park, CA) to the Council for nomination as President-elect of the Division. Additionally, much time was spent discussing with Ms. Colleen Struss (AAAS Chief Financial Officer and Chief Legal Officer) and Beth Bush (AAAS Chief Membership Officer) the changes being implemented by AAAS in order to become more member-facing and also to meet the future challenges of a publishing world where paper is no longer used and all publications are delivered electronically. Included was discussion of the place and future of the Pacific Division in the face of all of this change in AAAS.

The Council met over breakfast on Wednesday, 17 June to consider various recommendations from the Executive Committee and other business of the Division. The Council acted favorably on the nomination of Dr. James for President-elect during the 2015/2016 fiscal year. The Council also acted favorably on the recommendation of the Council Nominating Committee to elect Drs. Roberta Millstein (Department of Philosophy, University of California, Davis) and Janet Carlson (Stanford School of Education, Stanford University) to full five-year terms on the Executive Committee. Additionally, the Council elected Ms. Kristine Ablin-Stone (Borah High School, Boise, ID) and Dr. Mario Andres de Leo-Winkler (Post-doctoral research, Gravitational Lenses, University of California, Riverside) to three-year terms as at-large members of the Council. Other Council business included the discussion of logistical details and programming for the upcoming 2016 meeting of the Division, a thorough discussion of the desirability of meeting in Hawaii in 2017, the reception of financial reports from the Executive Director, a rather lengthy discussion of the future of the Division and its relationship with AAAS, and the transaction of other business required by the by-laws.

**ANNUAL MEETING, from page 13**

**Coming from the South (or the airport):**
- Driving north on I-5 North, exit Morena Blvd. (signs will say: Morena Blvd. use I-8 East).
- Stay to the right and follow the signs for Morena Blvd.
- Take the first right onto Linda Vista Rd.
- Travel to the third stoplight to USD’s east entrance, turn left and enter campus.

**Coming from the East:**
- Driving west on I-8 West, exit at Morena Blvd.
- Turn right onto Linda Vista Rd.
- Travel to the third stoplight to USD’s east entrance, turn left and enter campus.

**PARKING ON THE USD CAMPUS**

Parking will be available for meeting attendees on the west end of the USD campus (please refer to building #2 on the campus map on page 39 of this *Newsletter*). All cars parked on campus must have a parking permit, which may be picked up at the kiosk on the way onto campus. Additional details will be available in the April 2016 *Newsletter*.

**REGISTRATION CENTER**

The Registration Center will be in the Rotunda (main entrance) of the Kroc Institute for Peace and Justice, on the USD campus (see #12 on the campus map on page 39 of this *Newsletter*). Hours of operation are expected to be as follows, though these may change. Be sure to check the April
Visit us at http://pacific.aaas.org

Meeting Rooms

Technical sessions will meet in the Kroc Institute for Peace and Justice and the Shiley Center for Science and Technology (#s 12 and 17 on the campus map on page 39 of this Newsletter). All meeting rooms will be equipped with computers running Windows and Microsoft PowerPoint, and will be connected to computer projectors. Speakers requiring other specialized equipment such as slide or overhead projectors must make their requests known when they submit their abstracts. If available, specialized equipment will be provided. If rental costs are incurred, payment of these costs will be the responsibility of the requestor.

Times and Locations of Presentations

The assigned meeting rooms and times of presentations for the program will be published in the “Program with Abstracts” issue of the Proceedings (Vol. 35, part 1), which will be given to everyone who registers for the meeting. Speakers may obtain final confirmation of the time and place of their presentation by clicking the appropriate link(s) on the Pacific Division website (pacific.aaas.org) starting no later than 27 May 2016. Symposium planners will provide this information to presenters in their programs in advance of this date.

Computers and PowerPoint Presentations

Meeting rooms will be outfitted with computers running Windows and PowerPoint, and will be connected to standard data projectors. If you are planning to use PowerPoint for your presentation, you must make sure that it will run the way you want on the Windows platform. Only thumb/USB/flash drives may be used to load presentations onto the computers. If you are preparing your presentation on a Macintosh computer, make sure it will load onto and run the way you want a computer running Windows as there are significant differences in the way a Mac handles a PowerPoint compared to how a Windows computer handles one.

Call for Abstracts

Members of AAAS and its affiliated societies, students, teachers, and other scientists are encouraged to participate in the annual meeting by presenting papers, either orally or as posters.

If you submitting an abstract that is part of a symposium, the deadline for submission of abstracts to symposium planners is Friday, 1 April 2016.

If you are submitting a non-symposium (oral or poster) abstract, the deadline for submission of abstracts to section chairs for consideration for inclusion in the contributed portion of the program is Friday, 22 April 2016.

Instructions for the preparation and submission of abstracts follow.

Preparation of Abstracts

Properly prepared abstracts should contain two sections: 1) title, name(s) of author(s), contact information for author(s) and 2) the text of the abstract. All abstracts should be prepared in 10 pt Times New Roman font, “NORMAL” style, and left justified. These two sections should be prepared and formatted as described below.

Title: The title of the presentation should be italicized and in title case, with all principal words such as nouns, verbs, adjectives, pronouns, adverbs, and the second parts of hyphenated major words capitalized while small words of three letters or fewer, such as articles, prepositions, and conjunctions, remain in lower case unless they start the

- AAAS was an academic learning environment that introduced what conferences in scientific research are like. It helped me practice how to present on my research work as well as introduce how to listen other’s research. A big part of science research is collaboration in which AAAS was a great experience to learn from.

- Holland Page
San Francisco State University.
“The conference was a great way to meet people from around the western region of the continent who are also interested in science as well as gaining the experience of presenting research. It was nice to receive feedback from esteemed members of academia and it was great exposure to the research side of science which can be exciting when on the brink of something incredible and something that is worth being passionate about.”

-Harrison Schmachtenberger
University of San Diego

It will be worthwhile to attend. Thus, abstracts are limited to 250 or fewer words and should contain few if any references. It is okay to acknowledge funding sources at the end of the abstract, but the words used in this way do count toward the 250 word limit. For additional hints about writing good abstracts, try one of these two or other web pages:

https://owl.english.purdue.edu/owl/resource/656/1/
http://writingcenter.unc.edu/handouts/abstracts/

Remember to use Times New Roman 10 pt font, “NORMAL” style, and left justification for your abstract! If you use a different font or style, your abstract will be reformatted to this font and style. If your abstract contains special characters, in addition to submitting it via e-mail you should fax (541-552-8457) or scan and e-mail (aaaspd@sou.edu) a copy with the special characters clearly marked and notations indicating the font used. Be aware that if you use an unusual font set for special characters there is a high likelihood that we will not be able to print it correctly, so please use common font sets such as Symbol or Wingdings for special characters.

The first line of each paragraph of the text of your abstract should be indented 0.25 inches by using the FIRST LINE INDENT command of your word processor. Do not use a tab or the spacebar!

**SUBMISSION OF ABSTRACTS**

All abstracts must be submitted via e-mail as Microsoft Word (.doc or .docx) or .rtf file attachments. DO NOT SUBMIT ABSTRACTS IN THE BODY OF AN E-MAIL OR AS A PDF FILE!

**Symposium abstracts** should be e-mailed directly to the symposium organizer for review and approval.

Persons submitting abstracts for contributed sessions (non-symposium) must identify the appropriate section to which the abstract will be sent for review and acceptance into the program (see list starting on page 30 of this Newsletter) and e-mail their abstract to the chair (and co-chair if one is listed) of that section. Contributed abstracts must also be e-mailed to the Pacific Division office (rchristi@sou.edu). The subject line of these e-mail submissions should include the phrase “abstract2016” (no space between abstract and 2016) and your last name (e.g.: Abstract2016 Smith). Including this information in the subject line will ensure that you receive an e-mail reply confirming receipt of your submission at the Division office. Section chairs will make every effort to review submitted abstracts and notify submitters of whether or not their submission has been accepted into the program in a timely manner.

**Abstract submission deadlines:** Receipt of abstracts by symposium planners and section chairs have the following deadlines:

- **Deadline for abstract submissions for symposium presentations** to symposium planners – Wednesday, 1 April 2016.
- **Deadline for abstract submissions for contributed sessions**
Inspire the next generation of innovators and engineers..... volunteer tutor or pursue a path to teaching with EnCorps

Growing up in the South Bronx after migrating from Guyana, South America, EnCorps Educator Julian Lewis was introduced to airplanes by a pilot who happened to be his 7th grade teacher. After a successful career that included overseeing the operations of Lockheed Martin’s U2 reconnaissance aircraft and serving as the corporation’s Director of Diversity, Julian decided to pursue a second career teaching, hoping to inspire students like himself. He joined EnCorps in fall 2014, volunteered as a tutor at the STEM Academy of Hollywood and then obtained his Career and Technical Education (CTE) credential in engineering. He is now working with the school site to set up an aerospace program.

The EnCorps STEM Teachers Program (www.encorps.org), is a nonprofit whose mission is to help science, technology, engineering and math (STEM) professionals get involved with deserving middle and high school students from under-resourced communities. We are dedicated to increasing the number of science and math teachers and tutors throughout California, and currently support the Bay Area, Sacramento, Los Angeles, Orange County and San Diego regions. EnCorps is an easy way for you to get involved in STEM education and even explore a career in teaching if you’d like!

Our STEM Expert Tutors volunteer a couple hours a week to tutor students in math and science. Our Credential Track Educators also volunteer as tutors and guest teachers, but also receive support in obtaining a teaching credential and finding a position as a full-time middle or high school teacher. In either track, participants in EnCorps volunteer their time to work with under-resourced students to increase their knowledge and skills of math and science, and to help students learn to become problem solvers, innovators, creators and collaborators.

EnCorps provides unique opportunities for our Educators, including:
• Immediate access to working with students by tutoring or guest teaching under the mentorship of a host teacher
• Assistance and guidance with selecting and applying to teaching credential programs
• Support with exams and other teacher credentialing requirements
• Access to networks and schools as you seek full-time employment as a teacher
• Ongoing professional development via our Fall and Spring Institutes, and our Summer Residential Institute, as well as our monthly calls and informal opportunities
• A cohort of peers who are industry professionals engaging in education

EnCorps is free to our Educators. However, you must apply to our program.

APPLY NOW for consideration into our 2016 cohort: www.encorps.org/apply

You may also contact Bethany Orozco, EnCorps’ Southern California Program and Recruitment Director, at bethany@encorps.org or find out more by joining one of our monthly free EnCorps 101 webinars, RSVP: http://encorps.org/webinar/
The conference definitely was a learning and growing experience for me personally and professionally. The Q & A session is always my favorite part of the presentation. It allowed me to share and receive feedback from other students and professionals.”

– JoJo Y.K. Lee
University of San Diego

**Student Awards for Excellence**

The AAAS, Pacific Division offers each affiliated society and section participating in the annual meeting the opportunity to recognize outstanding student participants through the presentation of Awards of Excellence and cash prizes of $150 for first place (minimum judging pool of 3 presentations), $100 for second place (minimum judging pool of 6 presentations), and $50 for third place (minimum judging pool of 9 presentations). Additionally, each winner receives a certificate of recognition. Societies sometimes supplement these awards with their own cash prizes.

In 2016, seven division-wide awards may also be available: the Laurence M. Klauber Award for Excellence (unrestricted); the Geraldine K. Lindsay Award for Excellence in the Natural Sciences; the J. Thomas Dutro, Jr. Award for Excellence in the Geosciences; the Presidents Award for Excellence (unrestricted); the Rita W. Peterson Award for Excellence in Science Education Research; the Best Poster Award (for posters only but otherwise unrestricted); and the AAAS–Robert I. Larus Travel Award, which will provide a reimbursement for travel and other meeting related expenses up to $1,000 for the awardee to attend the national meeting of AAAS in Boston, Massachusetts, 16 – 20 February 2017 for the purpose of presenting his/her winning presentation as a poster. The Klauber, Lindsay, Dutro, Presidents, Peterson, Best Poster, and Larus awards are given to those students whose presentations and underlying research are judged the most significant in the advancement or understanding of science.

To be eligible for a sectional award or one of the division-wide awards, a student must 1) be registered for the meeting prior to the session in which his/her presentation is to be judged, 2) be the primary presenter of the presentation, and 3) be the principal research investigator. Student presentations, both oral and poster, are judged on their abstracts, scientific methodology and content, style of delivery or presentation, and audiovisual aids and/or handouts (if used). Sample evaluation forms for both oral and poster presentations are posted on the Division’s meeting web page, http://associations.sou.edu/aaaspd/2016SANDIEGO/index.html. Students who are competing for Awards of Excellence are invited to be guests of the Division at the annual banquet Thursday evening, 16 June 2016. Festivities that evening include the announcement of student awards. If you are one of these students, please be sure to check the appropriate box on the Advance Registration form to let us know you will be attending the dinner. Students may also purchase additional dinner tickets for guests at that time.

**IMPORTANT NOTE:** All judging for student awards ends no later than 2:30 p.m. on Thursday, at which time the judges go into closed session to determine the winners of the Division-wide awards. If you are a student wishing to compete for an Award of Excellence and your oral symposium presentation is scheduled to end later than 2:30 p.m. Thursday, you must, in addition to presenting orally as part of the symposium, prepare a poster for presentation at a poster session earlier in the week. For purposes of an award, your presentation will be judged as a poster and you will then be in the pool of potential prize winners. This may only occur if your presentation is part of a symposium. All poster sessions and oral contributed paper sessions are scheduled to ensure that student presenters are judged prior to the cut-off on Thursday afternoon.

**Special Events**

The following special events are planned for the meeting.

**Tuesday Evening USD President’s Reception** follows the Pacific Division Presidential Address.

**Wednesday evening AAAS Town Hall** with Dr. Rush Holt, CEO of AAAS, with reception to follow.

**Thursday evening Student Awards Banquet**

Thursday evening will be an exciting time for everyone as Division representatives will announce the names of student winners of sectional Awards of Excellence and also winners of the Division’s Laurence M. Klauber Award for Excellence (unrestricted), Geraldine K. Lindsay Award for Excellence in the Natural Sciences, J. Thomas Dutro, Jr. Award for Excellence in the Geosciences, Rita W. Peterson Award for Excellence in Science Education Research, the Presidents’ Award for Excellence (unrestricted), the Best Poster Award (for poster presentations only but otherwise unrestricted), and the AAAS Robert I. Larus Travel Award.

The evening is planned to begin at 6:15 p.m. with a reception, followed by dinner service to begin about 6:45 p.m. After dinner will be a brief program, including the presentation of student awards. We ask that all student award winners stay for the group photograph to be taken at the conclusion of the eve-
ning's program. The evening should end by about 9:15 p.m.

Banquet attendees can choose between three entrées: Truffle Chicken (including brie whipped potatoes, morel mushroom ragu and truffle cream), Coffee Rubbed Pork Loin (including sweet potato puree, slow cooked greens, and bourbon-maple sauce), and Four Cheese Ravioli (including shaved zucchini and squash). All entrées include rolls and butter, salad, chef’s choice of starch and vegetable, dessert, iced water, and coffee and hot tea service. Please note that details may change as we get closer to the banquet date. If a substitution must be made, every effort will be made to ensure that the replacement is comparable to or better than that which is listed here. A cash bar is anticipated during the reception and early part of the dinner for those wishing to purchase beer and/or wine. Banquet tickets are $50 each and should be purchased on the Advance Registration Form (see page 35 of this Newsletter) as there will be few available on-site. The deadline for ordering banquet tickets is the close of early registration for the meeting, 27 May. Please note that a portion of the cost of each banquet ticket helps to support the complimentary tickets given to student presenters.

Students in competition for Awards of Excellence are invited to be guests of the Division for this event. In order to receive a complimentary banquet ticket, be sure to check the appropriate entrée box on the Advance Registration Form (see page 35 of this Newsletter). Additional banquet tickets are available to students at the full price of $50. Note that if you request a complimentary ticket we expect you to attend the banquet. Please do not dishonor the Division’s generosity in offering you this opportunity to fully participate in the meeting with minimal out-of-pocket expenses by asking for a ticket and then not showing up!

**Friday Morning Business Meeting of the Council of the Pacific Division.** The Council of the Pacific Division will hold its annual breakfast and business meeting at 7:00 a.m. on Friday, 17 June in the Boardroom of the Kroc Institute for Peace and Justice (Room 226) on the USD campus. The Council will elect officers and Council members, discuss programs for the 2017 and 2018 annual meetings, and transact such other business as is required by the Division’s By-Laws. This is an open meeting and Pacific Division members with an interest in the governance of the Division are invited to attend.

**Public Lectures**

A public lecture series that is open to and free to the public is being planned for Friday afternoon. Please check the Pacific Division website for updates. An updated list of these lectures will also appear in the April Newsletter.

**Scientific Maker Day**

A first for the Pacific Division, we will be hosting a Scientific Maker Exhibit on Thursday morning, followed by a Scientific Maker Symposium on that afternoon. Please refer to page 15 in this Newsletter for details on the events and directions to apply in order to have your project included in the Scientific Maker Exhibit.

**Workshops**

As of 4 January 2016, the following workshop is planned. For the most up-to-date information about workshops for this meeting, please access the Division’s Workshops web page at this URL: http://associations.sou.edu/aaaspd/2016SANDIEGO/Workshops16.html

An Introduction to Grant-Writing for Foundations for Those in the Sciences, Social Sciences, Education and the Humanities. Organized by Peter Kraus (Associate Librarian, University of Utah, J. Willard Marriott Library, 295 South 1500 East, SLC, UT 84112; Peter.Kraus@utah.edu).

Participants will review the process of writing effective grant applications and assembling a good proposal to foundations. The basic components of a competitive grant proposal will be presented including the common pitfalls to avoid in grant writing and submission. Appropriate project funding sources will be discussed as well as establishing positive sponsor relationships, satisfying sponsor requirements, and the proposal review process.

**Field Trips**

All field trips are open to meeting registrants and their families. At least one member of a family group must be registered for the meeting. Unregistered family members will be charged an additional one-time-only $10 field trip registration fee. This fee is paid only once for this meeting, regardless of how many field trips a non-registrant participates in.

Due to limited space, advance registration is required for all field trips. Reservation and payment of field trip fee(s) are included on the Advance Registration Form (see page 35 of this Newsletter).

Visit us at http://pacific.aaas.org
A full refund will be granted if a trip is cancelled by the Division. If a registrant cancels via e-mail or written notification received in the Pacific Division office no later than 10 May 2016, the registrant will receive a refund of the fee(s) paid less a $15 processing fee. If paid by credit card, an additional 3.5% of the original charge will be deducted from the amount being refunded to help pay for fees charged to the Division by credit card companies.

Additional information about these field trips may be found on the Division’s Field Trips web page: http://associations.sou.edu/aaaspd/2016SANDIEGO/FieldTrips16.html.

(1) Tuesday, 14 June, Noon to about 5:00 p.m. Ramona Winery Explorations.

This trip will depart the USD campus in front of the Kroc Institute for Peace and Justice at noon. Prior to arriving at the first winery, a lunch stop will be made at Panera Bread for lunch on your own. After lunch, we will visit two wineries in the Escondido area. Attendees will have a chance to learn about the blend of science and art that goes into starting up and running a noteworthy viniculture and winemaking operation in this terra nouveau wine producing region of California. We plan to return to USD by 5:00 p.m.

Includes transportation, tasting fees at two wineries, and field guide. Please note that lunch at Panera Bread is on your own. Cost: $50.00 per person.

(2) Friday, 17 June, 5:00 p.m. to about 9:00 p.m. San Diego Microbrewery Field Trip.

Since early times, beer has played an important role in our society. But have you ever considered the science behind it? As technology has progressed, brewing techniques have been developed and refined, due in no small part to our increased knowledge in the fields of biotechnology, microbiology, and chemistry.

White Labs Brewing Company team members have been active in the American and worldwide craft brewing movements since the 1980s. The company, with headquarters in San Diego and offices in Davis, CA, Boulder, CO, Chicago, IL, Copenhagen, Denmark and soon in Asheville, NC, provides a wealth of services to brewers, winemakers, distillers and others in the fermentation business.

The tour will depart from in front of the Kroc Institute for Peace and Justice on the USD campus at 5:00 p.m. and arrive at White Labs Brewing Company a short time later. We will take time to eat box lunches prior to taking our tour of the facility.

After dinner, our friends at White Labs Brewing Company will share their passion and knowledge with participants as we tour their facility and learn about how different varieties of yeast can result in beers with very different flavors and nuances. The tour will be followed by a tasting flight of 4 beers where the only difference is the type of yeast used in the fermentation process. Come taste the differences!

Following our visit to White Labs, we plan to visit a second brewery to round out the evening. More details to follow.

Includes transportation, box lunch, and first beer flight. Additional beer flights, individual tastings, and pints may then be purchased on your own. Cost: $42.00 per person.

**Technical Sessions**

**Sympoisa**

The following symposia are being planned for this meeting. Although symposia are typically organized around invited papers, organizers will often consider adding one or more contributed papers if they are relevant to their programs. Should you wish to participate in one of these symposia, contact the symposium organizer directly. Instructions for abstract preparation and submission for symposium presentations appear on pages 17f. of this Newsletter. Should you prefer to present a paper in one of the contributed paper sessions, you should also refer to pages 17f. for instructions and also page 30 for names of sections and program organizers in this Newsletter. Check the Division’s web page, http://associations.sou.edu/aaaspd/2016SANDIEGO/Symposia16.html, for the latest information on symposia.

Please remember that at this time the listings contained herein are tentative and subject to change. If you plan to attend the meeting largely for one symposium or technical session, check the Division’s website for updates to the program or contact the Division office at 541-552-6869 or aaaspd@sou.edu to confirm the status of the session(s) before committing travel funds. Additional symposia added to the program will be posted on the Division’s symposium web page and also appear in the April Newsletter.

Important notice for students presenting in symposia: If you are a student who intends to be in the competition for an Award of Excellence and you are part of a symposium with your presentation scheduled Thursday afternoon (check with the planner of your symposium) or Friday, you must also present your work as a poster in order to be judged. Otherwise, you will not be eligible for student awards due to the conclusion of judging Thursday morning. Awards will be announced later that evening.

(1) Current Understanding and Data Gaps for Bahía de los Ángeles, an International Biosphere Reserve. Orga-
For centuries, Bahía de los Ángeles has drawn explorers, naturalists, and scientific researchers from around the world to study the unique and contrasting desert and marine habitats, rich natural resources, and the high biodiversity that includes a variety of threatened and endemic species. These same elements have also attracted tourists; development, the pressures of which can be seen in the ecosystem; and have led to the declaration of the region as an International Biosphere Reserve. This region is a treasure in its own right and also provides lessons about how to balance the use and conservation of coastal and marine resources.

The goal of this symposium is to provide an overview of the broad range of research being carried out in Bahía de los Ángeles, as well as to identify gaps in data needed to be filled to better understand and manage this region, and others like it. (2) Bahía de San Quintín: The Status, Threats, and Solutions for One of the Last Intact Coastal Lagoons in Western North America. Organizers: Drew M. Talley (Environmental and Ocean Sciences, University of San Diego; drew.talley@gmail.com) and Alan Harper (Terra Peninsular, C/O Endangered Habitats League, Los Angeles, California).

San Quintín bay is the best preserved coastal lagoon ecosystem in the Mediterranean zone of western North America. The enormous tidal prism of this hyper saline bay leads to near complete replacement of its contents on Spring tides. Due to the intact upland ecosystem, limited agricultural flow, high marine productivity and terrestrial fog drip, it is a refuge for numerous migratory, endemic, and economically important species, as well supporting a managed shellfishery. This session will focus on recent research into the biodiversity and economic resources of the region, the potential threats, and how civil society, non-profits and government agencies are responding to those threats.


Mission Bay Park is the West Coast’s largest aquatic park and a central feature of San Diego’s coastline. This urbanized estuary is fed by two major freshwater creeks and approximately 100 storm drains that channel runoff from a highly developed watershed into the bay. Besides its value for recreation, Mission Bay also hosts a diverse assemblage of aquatic species, ranging from phytoplankton and zooplankton to large invertebrates, fishes and marine mammals. The park also includes wildlife preserves that provide important habitat for nearly 100 species of birds, including the federally endangered Least Tern, Brown Pelican and Lightfooted Clapper Rail. Like many estuaries along the West Coast of North America, Mission Bay has experienced biological invasions by non-indigenous species, and some of these have been associated with substantial impacts on the native fauna. Speakers contributing to this symposium will discuss the ecology of the bay, as well as efforts to engage students from the University of San Diego and local residents in scientific investigations addressing various aspects of the Mission Bay ecosystem.

(4) How Ocean Acidification and Ocean Warming Could Influence the Functional Morphology and Ecology of Intertidal Organisms. Organizers: Maya S. devVries and Jennifer R. A. Taylor (Marine Biology Research Division Scripps Institution of Oceanography, University of California, San Diego; mdevries@ucsd.edu and j3taylor@ucsd.edu).

The acidity and temperature of the world’s oceans are increasing at unprecedented rates. Ocean acidification (OA) and ocean warming (OW), have been shown to profoundly affect many marine organisms that build calcified structures (calcifiers). Yet, there is a hypothesis that intertidal calcifiers will be less susceptible to OA and OW because they are already exposed to large fluctuations in pCO2 and temperature on a daily basis and have therefore evolved tolerance to extreme conditions. The goal of the proposed symposium is to evaluate this hypothesis and to understand why some intertidal calcifiers exhibit a response to OA and OW while others do not. We will begin by using tools from functional morphology to understand biomechanical and material properties responses to OA and OW. Specially, we will examine how rocky intertidal and coral reef organisms, including calcified algae, crustaceans, mollusks, and echinoderms, respond to OA and OW conditions. We will then broaden this view to synthesize how morphological and biomechanical changes at the individual level could influence ecosystem dynamics and structure via changes to community structure and trophic dynamics. We will end with a panel discussion aimed at developing future research directions that integrate links between species responses and ecosystem responses to OA and OW. Together, the proposed symposium will provide a comprehensive evaluation of how intertidal communities are expected to fare under future ocean conditions.

(5) Particles in the San Diego Atmosphere: Reactions, Properties, Climate, and Health. Organizer: David De Haan (Department of Chemistry and Biochemistry, University of San Diego; ddehaan@sandiego.edu).
Aerosol particles have significant impacts on human health and global climate. San Diego is home to many active research groups who study atmospheric aerosol particles in the laboratory and in the field. In this symposium, researchers will describe their current efforts to characterize the chemical, optical, and physical properties of aerosol particles, both freshly formed particles and those that have been “aged” by several days of atmospheric reactions. The sources of these particles, and the ways that they change while aging in the atmosphere, are still quite uncertain. This symposium will therefore include experimental, field, and computational work addressing aerosol effects on human health and climate, the properties of aerosol particles that cause these effects, studies of how these properties change over time, and studies of aerosol particle formation.

(6) Recent Advances in Turbulence Research: Experiments, Theory, and Computations. Organizers: Frank Jacobitz (Mechanical Engineering Department, Shiley-Marcos School of Engineering, University of San Diego; jacobitz@sandiego.edu), Marko Princevac (Mechanical Engineering Department, Bourns College of Engineering, University of California, Riverside; marko@engr.ucr.edu); and Imane Khalil (Mechanical Engineering Department, Shiley-Marcos School of Engineering, University of San Diego; ikhalil@sandiego.edu).

This symposium is planned as a venue for the exchange of recent results in the field of turbulence research. Discussion topics will include geophysical turbulence and wildfire dynamics, but any topics related to turbulence research are appropriate for this session. Geophysical turbulence concerns flow with shear, stratification, or rotation and with applications in the atmosphere or oceans, including turbulence evolution, transport, and mixing of natural or anthropogenic substances. Atmospheric flows and turbulence in large part govern fire dynamics. Turbulent flows inside the canisters of spent fuel assemblies will be considered for 7x7 boiling water reactors. Studies that involve laboratory or field experiments, theoretical analysis, as well as simulation approaches will be discussed. The organizers particularly encourage students at the undergraduate or graduate level to present their work in this symposium.

(7) Scientific Maker Symposium and Exchange. Organizers: Joan Horvath and Rich Cameron (Nonscriptum LLC, Pasadena California; joan@nonscriptum.com and rich@nonscriptum.com).

Scientists have always been forced to create a lot of their equipment but major discoveries typically have required large capital budgets. Even with those budgets scientists often have to design their protocols to fit the equipment. Suppose it could be the other way around and equipment could be easily developed to fit a protocol? Also suppose you could put up plans for instrumentation and have people all over the world build something and go take data for you? This session will have two parts. We will present case studies of DIY instrumentation developed with “maker” technologies like 3D printing and Arduino electronics. Then we will explore some of the issues that this brings up and the organizations that are springing up to manage safety and other issues that arise when science is performed outside the traditional path. We also will have exhibit tables for those who have created actual instrumentation whether for their own labs or beyond that to Kickstarter ventures.

(8) United States World’s Fairs and Expositions: Seeing Fairs as More than Fun Places to Visit. Organizer: Alan L. Bain (Research Collaborator, National Anthropological Archives; retired archivist, Smithsonian Institution Archives; and Emeritus Archivist (Academy of Certified Archivists; Baina@si.edu).

United States world’s fairs have been viewed by the public as enjoyable venues to visit, places to partake of their food, look at their entertainers, and glimpse people from around the world. In fact, fairs demonstrated the political, scientific, and racial attitudes of their times, and projected what the correct American way and values should be for its citizens.

Although anthropology played a critical role in the exhibitions and village displays shown at world’s fairs in the past, notably the World’s Columbian Exposition (Chicago, 1893) and the Louisiana Purchase Exposition (St. Louis, 1904), the Panama-California Exposition held in San Diego (1915-1916) witnessed the largest display of physical anthropology seen by an American audience. Anthropologists and researchers were sent around the globe to capture skeletons. Artistic renderings and skeletal displays of stages in human evolution shown at the Panama-California Exposition represented a unique effort. The lasting impact of the exhibition, its influence on later exhibitions in the United States, and the creation of the permanent Museum of Man provides an example of the influence of anthropology at the fairs and expositions. Anthropologists also went to the fairs’ villages to collect anthropological data and conduct ethnological field studies. In addition, modern day use of poetry, literature, and performance show another side of world’s fairs, how they were a display of American imperialism, racism, and racial stereotyping.

(9) Library Science Symposium: The Evolving Library. Organizers: Crystal Goldman (Geisel Library, University of
There are compact overseas courses, one-shot library instruction, tests, papers, and projects. However, not all educational experiences take place through the assessment of classroom experiences, using evidence of continuous improvement, and demonstrate a return on investment to the university. In many cases, authentic assessment strategies are more appropriate than classroom-based strategies.

The history of libraries stretches back thousands of years, yet the contemporary library as a conceptual and intellectual space, in community, and especially on the university campus, continues to change rapidly. The roles of librarians have had to keep pace with the evolving needs of library patrons and the use of library space. A wealth of new technologies, such as digitization of print and realia, 3D printing, and institutional repositories for both content and data have played a major part in many of the recent transformations in library services and librarian positions. The application of technology to many aspects of the profession have allowed for innovations in areas such as instruction, reference, cataloging, access, digitization, and scholarly communication. While technology has radically altered the work of librarians, its application to library work has allowed librarians to participate more fully in their communities.

This symposium seeks to highlight the evolution of library spaces, services, and pedagogy, as well as other developments in the field of librarianship as librarians have embraced technology to better serve patrons. From the history to the future of libraries, we wish to foster a dialogue on the many advances and challenges that have shaped the profession and the space--both physical and intellectual--in which librarians operate.

(10) Evaluating Return on Investment and Assessing Student Learning for Non-traditional Teaching Activities. Organizers: Crystal Goldman (Geisel Library, University of California, San Diego, La Jolla, CA; elgoldman@ucsd.edu) and Paula S. Krist (Institutional Research & Planning, University of San Diego; pkrist@sandiego.edu).

More and more often, educators are being asked to verify the effectiveness of their work through the assessment of student learning. Usually, the assessment of student learning takes place through the assessment of classroom experiences, using tests, papers, and projects. However, not all educational experiences occur in the traditional semester- or quarter-long course. There are compact overseas courses, one-shot library instruction sessions, and extracurricular programs, to name only a few, in which students can enrich their academic lives. For these non-traditional instructional settings, effective assessment can be a challenge. Those involved in such courses or programs still need to set reasonable goals and measureable outcomes, provide evidence of continuous improvement, and demonstrate a return on investment to the university. In many cases, authentic assessment strategies are more appropriate than classroom-based strategies.

The AAAS, Pacific Division meeting was the first conference I have attended as a graduate student and presented at. The meeting was a great experience and I really enjoyed getting to know other students in my field and hearing about their research. It was also valuable getting to talk with other scientists that were not within my research field and getting feedback from various points of view. All in all, a great experience!

– Laura Melroy
San Francisco State University

This symposium will highlight some of the many ways in which university faculty and staff authentically assess and evaluate their non-traditional teaching and learning activities.

(11) Mentoring and Deeper Learning in STEM Education. Organizers: Carl Maida (University of California, Los Angeles; cmaida@ucla.edu) and Louis Nadelson (Utah State University; louis.nadelson@usu.edu).

Project-based learning and work practice activities that embrace mentoring are forms of deeper learning, which may serve as a corrective to current schooling regimes. However, there are limited opportunities for youth to actually engage in deeper learning activities with mentors within consciously designed communities of practice for skill acquisition. These activities are typically found in certain experientially based programs, such as internships and apprenticeships in the more progressive high schools, or in experimental co-curricular activities designed by universities and other non-profit organizations. Robert Halpern (2009) advocates for the high school apprenticeship as a form of learning that may provide the best chances for young people. Cognitive psychology and neuroscience are discovering what artisans have always known, namely the value of experiential and project-based learning in acquiring and retaining craft knowledge, or practical knowledge gained by experience. A sense of “knowing-in-action” comes from participation in practice-oriented learning experiences, which include school-to-work programs, service learning, mentorships, internships, and apprenticeships in various kinds of skilled work. Moreover, informal learning outside of school takes place in highly social venues that “offer a form of mentoring, apprenticeship, and participation that maximizes motivation and engages the learner’s sense of identity” (Meltzoff et al, 2009, 288), for example, as a fledgling scientist, engineer, designer, clinician, or teacher. Learning encounters between students and their mentors can be conceived as dialogues, and a distinctive feature of project-based learning is how the teacher-student relationship is constructed and negotiated through such encounters. Students who experience this form of learning are rewarded through the responses of their mentors in these encounters. Scientists in the emerging field

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of social neuroscience view encounters, such as mentoring, as ways to enhance social interaction that is essential to learning, which, in turn, is supported by neural circuits linking perception and action for “close coupling and attunement between self and other,” and for synaptic plasticity (Meltzoff et al, 2009, 285). This session will combine didactic, experiential, and reflective activities to engage audience members, including teachers and informal science educators, and presenters in a professional learning community experience. The intent is to provide an opportunity for collaborative inquiry and the learning related to the promotion of mentoring as a deeper learning approach to STEM (Science, Technology, Engineering and Mathematics) in the classroom and beyond. Participants in a breakout session will consider ways to foster mentoring in deeper learning activities, including project-based learning in the classroom, in after school programs, and in experiential, community-based learning activities, such as mentored internships and apprenticeships. Panelists in roundtable format will discuss current issues and future trends in STEM education, including teaching integrated STEM curriculum, engaging students in authentic STEM research, integrating citizen science into the STEM curriculum, teacher adoption of educational innovations to teach STEM, pre-college science enrichment and “pipeline” programs, and scientist–student mentoring activities in formal and informal settings.

References

(12) Limits to the Second Law of Thermodynamics: Experiment and Theory. Organizer: Daniel P. Sheehan (Department of Physics and Biophysics, University of San Diego).

The second law of thermodynamics is foundational to science, engineering and technology. During the past two decades, however, more than two dozen challenges have been advanced into the general scientific literature by research groups worldwide. In recent years, several have undergone laboratory test, and their results indicate that the second law might not be universal.

In this symposium, the current experimental and theoretical status of second law, as well as its foundational issues, will be explored. Topics are expected to include Maxwell’s demon, decoherence, the thermodynamic arrow of time, and developments in the theory of nonequilibrium systems. Special attention will be paid to laboratory experiments which address the question of its universality.

References

(13) Quantum Retrocausation III. Organizer: Daniel P. Sheehan (Department of Physics and Biophysics, University of San Diego).

Causation – the principle that earlier events affect later ones, but not vice versa – undergirds our experience of reality and physical law. Although causation is predicated on the forward unidirectionality of time, in fact, most physical laws are time symmetric; thus, they formally and equally admit both time-forward and time-reverse solutions. Time-reverse solutions suggest that, in principle, the future might influence the past, i.e., reverse (or retro-) causation. Why time-forward solutions are preferentially observed remains an unresolved problem. In-with journal citations increasing exponentially in recent years.

Evidence for reverse causation is currently relatively scarce and controversial. While laboratory results are intriguing, theoretical models have lagged, not yet making solid connections with mainstream physics. Furthermore, many of the most basic physical issues, e.g., the role of the second law of thermodynamics in disallowing retrocausation, and whether retrocausation is best explained by energy transfers or simply by correlations without information exchange, remain open questions.

This symposium will explore recent experiments, theory, and philosophical issues concerning retrocausation. It is hoped the meeting will foster better theoretical models by which laboratory results can be understood, and stimulate new experiments and collaborations by which the underlying physics may be more clearly exposed.

References

(14) Law Enforcement with Ethnically Diverse Communities in the 21st Century Using Forensic Psychological Science: A Culturally Responsive International Paradigm. Organizer: Ronn Johnson (Clinical Mental Health Program, School of Leadership and Education Sciences, University of San Diego, San Diego, CA; ronnjohn@sandiego.edu). Half day program not yet scheduled.

The diverse worldwide policing demands of the 21st Century law enforcement has resulted in the need for qualified psychologists to grapple with substantive concerns associated with policing diverse communities. For example, in September of 2015 the Ferguson Commission Report concluded “We have not moved beyond race.” The report detailed an assessment of community conditions that fueled the diverse reactions observed in the aftermath of this case. Many of the reactions were the result of multigenerational economic, education, housing and health-related factors. Although the ignition point for the nationwide response seemed to be largely triggered by the pockets of negative perceptions of the criminal justice system and law enforcement. Forensic psychol-
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ogy can assume a pivotal role in the organizational structure of departments. The objective of this symposium is to use a forensic psychological science to assess factors that are designed to make policing more culturally responsive. Some of the projected paper presentations include:

- The forensic psychology of policing in diverse communities: Post-Ferguson Commission Report
- Culturally responsive use of clinical forensic psychological evaluation tools for various public safety purposes
- Arrest and incarceration of women of color
- Integrating evidence-based and culturally responsive mental health services for policing diverse communities
- Can citizen review boards fulfill a dual-role of facilitating police accountability and promote ethnoroal trust from diverse communities?

(15) Forensic Psychological Science on the Violence of Terroristic Groups: An Antiterrorism Threat Assessment Paradigm. Organizer: Ronn Johnson (Clinical Mental Health Program, School of Leadership and Education Sciences, University of San Diego, San Diego, CA; ronnjohn@sandiego.edu).

Half day program not yet scheduled.

Homeland Security and forensic psychologists search for ways to empirically understand the motives behind the surge in what may be assessed as senseless violence. Acts of terrorism are traumatic incidents that have no international border restrictions. To no surprise, this type of violence is also used as a form of terrorism. Empirically, it has continued to have a traumatic effect on a diverse group of individuals and is an international phenomena. Terrorists use a variety of tactics, techniques, and procedures to achieve their often unstated objectives. Research has consistently demonstrated that Post-Traumatic Stress Disorder (PTSD) can be one of the clinical outcomes for terrorism that also potentially results in forensic consequences. For example, the rescue of a large group of Kurds from ISIS who were destined for a mass killing revealed unimaginable testimonies about their tortuous imprisonment. The objective of this symposium is to use a forensic psychological science to assess senseless violence as a potential western recruitment approach used by groups like ISIS and AQAP. Some of the projected paper presentations include:

- Is there a forensic science nexus between senseless violence and terrorism group’s recruitment of westerners?
- Are there evidence-based treatments available for survivors and others indirectly exposed to terrorism?
- What does science reveal about the forensic psychological mindset of terrorists that engage in senseless acts of violence?
- What empirically-based threat assessment models are effective in identifying PTSD vulnerabilities in Homeland Security personnel?
- Can psychological stress inoculation approaches be used as an evidence-based antiterrorism strategy?

(16) Conducting Mental Health Research in the Community Setting for the Benefit of Underserved Populations. Organizer: Patricia L. Jones (Research and Publications Coordinator, Community Allies for Psychological Empowerment, San Diego, California; pjoness@cape-ari.org).

At present, the status quo of mental health care for underserved populations lies in minimal services provided in county mental health, an absence of mental health care entirely, services rendered by volunteers lacking clinical training, and provision of non-clinical interventions through the conduit of peer support. In order to ameliorate the gap between good intentions and emergency mental health care, change is necessary. Funding the programs already in place is not enough to elicit sustained, prudent, efficacious change. Research that provides the capability to conduct rigorous statistical analysis of outcome-based data to ensure treatment efficacy and validate protocols tailored to our populations and community partner needs is necessary. This symposium is designed to provide a detailed overview of the planning, implementation, dynamics, operations, and goals of an evidence-based, data-driven, community research program. While the lessons here are specific to mental health, the model itself can be applied to a vast number of fields in which scientific inquiry has an impact on the lives of community members. Examining the data and feedback in the context of the original community experience isn’t a novel idea, it’s just good practice. Evidence-based practices and sound program development are the cornerstones of effective treatment, and the key to understanding and addressing the issues afflicting the communities we serve.

Topical areas which may be condensed to fewer sections with same content are:

1. Know Your Topic – Choosing an Appropriate Research Study Topic in your Community
2. Rethink Design – Data From the Field is Not the Same as Data From the Laboratory
3. Forensic Populations – Special Considerations in Research Design
4. Other Vulnerable Populations – Special Considerations in Research Design
5. Data Safety and the Ethics - Longitudinal Research in Communities
6. The IRB - Working with Local Educational IRBs or Establishing a Community IRB
7. Comparing Local Data to National Samples – When, Why, and How

(17) Boise Extravaganza in Set Theory (BEST). Organizers: Liljana Babinkostova, Samuel Coskey, and Marion Scheepers (Department of Mathematics, Boise State University, Boise, Idaho; liljanababinkostova@boisestate.edu).

This program is a continuation of the well-known conference BEST (Boise Extravaganza in Set Theory). BEST focuses on the mathematical discipline called Set Theory, and its applications in other disciplines in Mathematics. BEST, for its first nineteen years hosted in Idaho at Boise State University, has been a symposium at the Pacific Division annual meetings since 2013.

Set Theory is the mathematical foundation for the study of the infinitary objects that routinely arise in Mathematics and its applications, and in the mathematical sciences. Contemporary set theoretic research addresses basic questions about provability, consistency and independence, and the relative strength of postulates or hypotheses in mathematized scientific theories. The methods developed by set theory serve as powerful tools for applications in many other mathematical disciplines, including algebra, analysis, combinatorics, complexity, topology and more.

The invited speakers for this program are successful set theorists from different career stages and will present high level scientific talks in several areas of set theory and its applications. The BEST symposium will also host contributed talks in Set Theory and its applications by participants. Undergraduate and graduate students will also present research accomplishments in these areas.

(18) Philosophers of Biology Engaging the Biosciences. Organizer: Roberta Millstein (Department of Philosophy, University of California, Davis; RLMillstein@UCDavis.edu).

Contemporary scientists are constantly being challenged to be more interdisciplinary and integrative in their approach; as such, tools from computer science and engineering are deployed in biology, and biological theory has been exported into new domains - from cancer biology to toxicology. These advances in modern biology have generated a set of interesting philosophical challenges: first, how best can we find common ground across disciplines, and what is distinctive about explanations in the biological sciences? We plan to focus on a number of case studies that illustrate the challenges and opportunities associated with moving across disciplinary boundaries: individualized medicine, sex determination, systems biology, cancer biology, and toxicology. A central theme is the nature of reductive versus integrative approaches to the sciences.

More specifically, we will engage with the following areas and topics:
- evaluation and analysis of evidence in individualized medicine
- measurement, robustness analysis, and temperature-dependent sex determination in turtles
- a model of cancer that incorporates evolutionary, ecological, biological, and developmental aspects
- the reception of new approaches to toxicology based on modern systems biology
- explanation in systems biology
- scientific generalizations in the biological sciences
- mechanisms in molecular biology

(19) At the Crossroads of Global Water Issues: An Interdisciplinary Perspective. Organizer: James Bolender (Department of Chemistry and Biochemistry, University of San Diego; bolender@sandiego.edu) and Michael Rosen (United States Geological Survey, Carson City, Nevada).

Water contamination and access issues related to clean water is a global problem. Bacterial, parasitic, industrial run offs, pesticides, anthropogenic and geogenic heavy metal contamination of water is evident in developed and developing nations. There are common issues that can hinder access to this vital resource and common significant health outcomes as a consequence of consuming such contaminated water. This symposium aims to explore the issues in access to clean water across the globe and the health consequences from a scientific perspective. Discussion about the interdisciplinary attempts to address these problems via public health education about nutritional and sanitation interventions to clean the water and promote excretion of contaminants; as well as locally accessible remediation processes that could be used to further improve access to and consumption of clean water will be addressed. We welcome contributions from fields as varied as engineering, sociology, environmental psychology, and opportunities associated with moving across disciplinary

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“The AAAS Pacific Division meetings in Riverside and San Francisco in summer 2014 and 2015 were highlights of my undergraduate research experience at the University of San Diego. The diversity of topics presented makes the conference fun and accessible. Meeting fellow undergraduate, graduate, and postgraduate researchers from across the country has been helpful in advancing my research project, and instrumental in shaping my plans for higher education.”

— William Dow
University of San Diego

political science, chemistry, biology, and more.

(20) Climate Change Communication: Getting the Message Across to Diverse Audiences. Organizer: Michel Boudrias (Department of Environmental and Ocean Sciences; University of San Diego; boum@sandiego.edu).

Climatologists, oceanographers, and atmospheric scientists have been increasing their efforts to quantify the impacts of climate change at several geographic scales from the local issues to the global patterns of change in temperature, greenhouse gases and sea level rise. Translating the complexities of climate science to connect to diverse audiences, from students in K-12 settings, to college courses to zoos, aquaria and museums to decision makers in the community, has become a field of its own. Teams of researchers from multiple disciplines have been working together to find the best ways to explain the science, develop innovative educational resources and provide potential solutions to deal with the impacts of climate change. This symposium will bring together climate scientists, science educators, social psychologists and practitioners to share what they have learned from their interdisciplinary efforts and resources that can be used to educate diverse audiences about climate change.

CONTRIBUTED PAPERS

Those wishing to submit papers for presentation at a contributed paper session (oral or poster) should refer to the instructions for abstract preparation and submission on pages 17 and following in this Newsletter.

The deadline for submitting abstracts for contributed papers (non-symposium) is Friday, 22 April 2016. If an abstract comes in after this date, it may not be listed in the program. Also, be aware that the abstract you submit will be published as written. It will not be edited. If it contains errors, they will appear as submitted. Be sure to keep the length of your abstract to no more than 250 words and use 10-point Times New Roman font (no exotic fonts, please!). Don’t forget to state clearly if yours is a student presentation so that it will be included in the judging competition. Please remember that if you are a student who intends to be in the competition for an Award of Excellence and you are part of a symposium with your presentation scheduled on Thursday afternoon or Friday (check with the planner of your symposium), you must also present your work as a poster in order to be judged. Otherwise, you will not be eligible for student awards due to the conclusion of judging early Tuesday afternoon. Awards will be announced later that evening at the banquet.

POSTER SESSIONS

Each poster will be assigned a display space of 48” tall x 48” wide (1.2 m x 1.2 m) on a shared poster display stand and will be mounted using map pins. Over-sized posters may be refused display privileges. Posters will be grouped by discipline and subject matter. In order to assure fairness, the Pacific Division Council took action stating that all student posters must fit within the assigned display space to be eligible for student Awards of Excellence. The use of extra space or an over-sized poster will disqualify a student from the awards competition.

Student posters will be judged to receive Awards of Excellence. Students must be present during the entire judging period to allow judges the opportunity to discuss their work and to evaluate their posters.

If you need a bit of help organizing the content of your poster, a website containing excellent information on poster preparation is http://www.ncsu.edu/project/posters.

SOCIETIES AND PACIFIC DIVISION SECTIONS

ACCEPTING CONTRIBUTED PAPERS FOR PRESENTATION AT THE MEETINGS

Agriculture, Food, and Renewable Resources. Section chair and program organizer: Please contact the Pacific Division office, rchristi@sou.edu, for information on this section.

Anthropology and Archaeology. Section chair and program organizer: Dr. Sang-Hee Lee, Department of Anthropology, University of California Riverside, 900 University Avenue, Riverside, CA 92521. Contact: shlee@ucr.edu.

Atmospheric and Hydrospheric Sciences. Section chair and program organizer: Dr. Clive E. Dorman, Research Oceanographer, Integrative Oceanography Division, Scripps Institution of Oceanography Dept 0209, University of California, San Diego, La Jolla, CA 92093-0209. Contact: c dorman@ucsd.edu.
Cell and Molecular Biology (including Medical and Dental research in these areas). Section chair and program organizer: Dr. Kristen Mitchell, Department of Biology, Boise State University, Boise, ID 83725. Contact: 208-426-4620; kristenmitchell@boisestate.edu.

Chemistry and Biochemistry. Section chair and program organizer: Dr. Owen M. McDougal, Department of Chemistry and Biochemistry, Boise State University, Boise, ID 83725. Contact: 208-426-3964; owenmcdougal@boisestate.edu.

Computer and Information Sciences. Section chair and program organizer: Dr. C. Mark Maupin, Department of Chemical and Biological Engineering, Colorado School of Mines, Golden, CO 80401. Contact: 303-273-3720; cmmaupin@mines.edu.

Earth Sciences. Section chair and program organizer: Dr. Jad D’Allura, Department of Geology (emeritus), Southern Oregon University, Ashland, OR 97520. Contact: 541-899-7010 or 541-690-7739; dallura@sou.edu and rockit@dishmail.net (copy e-mail to both accounts).

Ecology, Environmental Sciences, and Sustainability. Section chair and program organizer: Dr. Richard Van Buskirk, Environmental Studies, Pacific University, 2043 College Way, Forest Grove, OR 97116. Contact: 503-352-2251; vanbuskirk@pacificu.edu.

Education. Section chair and program organizer: Dr. Louis Nadelson, School of Education and Leadership, Utah State University, 2605 Old Main Hill, Logan, UT 84322. Contact: 435-797-7697; louis.nadelson@usu.edu.

Engineering, Technology and Applied Sciences. Section chair and program organizer: Dr. Frank Jacobitz, Department of Engineering, University of San Diego, 5998 Alcalá Park, San Diego, CA 92110. Contact: 619-260-7820; jacobitz@sandiego.edu.

Evolution, Organismal Biology, and Biodiversity. Section chair and program organizer: Dr. Julia Ruppell, Department of Biology, Pacific University, 2043 College Way Forest Grove, OR 97116. Contact: ruppell@pacificu.edu.

General and Interdisciplinary. Section chair and program organizer: Ms. Crystal Goldman, UC San Diego Library, University of California, San Diego, 9500 Gilman Drive #175Q, La Jolla, CA 92093. Contact: 858-246-1626; clgoldman@ucsd.edu.

History and Philosophy of Science. Section chair and program organizer: Dr. Donald McGraw, P.O. Box 515, Ephraim, UT 84627. Contact: 619-947-5108; donaldjmcgraw@icloud.com.

Materials Science. Section chair and program organizer: Dr. George Quainoo, Department of Physics and Engineering, Southern Oregon University, 1250 Siskiyou Blvd, Ashland, OR 97520. Contact: 541-552-6404; quainoog@sou.edu Section co-chair: Dr. Vilupanur Ravi, Department of Chemical and Materials Engineering, California Polytechnic University, Pomona, 3801 W. Temple Avenue, Pomona, CA 91768. Contact: 909-869-2672 vravi@csupomona.edu.

Mathematics. Section chair and program organizer: Dr. Liljana Babinkostova, Department of Mathematics, Boise State University, 1910 University Drive, Boise, ID 83725. Contact: 208-426-1172; liljanababinkostova@boisestate.edu.

Physics. Section chair and program organizer: Dr. Ellen Siem, Department of Physics and Engineering, Southern Oregon University, 1250 Siskiyou Blvd., Ashland, OR 97520. Contact: 541-552-6489; siem@soeu.edu.

Psychology. Section chair and program organizer: Dr. Veronica Galván, Department of Psychology, University of San Diego, San Diego, CA 92110. Contact: 619-260-7739; vgalvan@SanDiego.edu.

Social, Economic and Political Sciences (including Health Services). Section chair and program organizer: Dr. Carl A. Maidia, UCLA Schools of Dentistry and Medicine, University of California, PO Box 951668 CHS, Los Angeles, CA 90095. Contact: 805-492-5613; cmaida@ucla.edu.

This space was left blank on purpose to allow for additional text for field trips and other last minute add-ins. This Newsletter is No. 66 ver 5. Check back for later versions as additional details become available.

Visit us at http://pacific.aaas.org
97th Annual Meeting  
San Diego, California  
14 – 17 June 2016

Call for Papers and Abstracts

Members of AAAS and its affiliated societies, students, teachers and other scientists are encouraged to participate in the annual meeting of the Pacific Division of AAAS by presenting papers and/or posters. Procedures for submitting abstracts for inclusion in the technical sessions of this meeting are presented in brief below and in full starting on page 17 of this Newsletter. Read both carefully before submitting an abstract!

For presenters of contributed papers or posters, e-mail the title, abstract and other required information (see instructions below and also starting on page 17 of this Newsletter) as a Word (.doc or .docx) or .rtf attachment to the chair of the appropriate society or section (see page 30 of this Newsletter) and also the Pacific Division office at rchristi@sou.edu. If your abstract contains special characters, fax a copy of it with the special characters marked and the name of the typeface used to the Pacific Division office, 541-552-8457, in addition to the e-mail submission. The deadline for contributed paper abstract submissions is 22 April 2016. Students wanting to compete for an Award of Excellence must identify themselves as such on Line 7 of their abstract submissions so that they will be included in the judging.

Oral contributed papers are scheduled every 20 minutes, allowing about 14 minutes for the talk, about five minutes for questions at the end, and a minute or so for PowerPoint change-over. If you are presenting in a symposium, please contact the symposium organizer for presentation details.

For presenters in symposia, submit your abstracts directly to the symposium planner. The deadline for symposium abstracts is 1 April 2016.

Format your abstract submission as follows:

Line 1: Submitter’s name
Line 2: Submitter’s telephone number and e-mail address
Line 3: Presenter’s name (if different from above) or “SAME” (if same as above)
Line 4: Presenter’s telephone number and e-mail address (if different from above)
Line 5: For contributed papers and posters, list the name of the Society, section or program to which you are submitting your presentation for review (see page 30 of this Newsletter for names of sections chairs).

For those presenting in a symposium, identify the name of the symposium here and send your abstract directly to the symposium planner.

Line 6: Type of presentation (ORAL or POSTER)
Line 7: Is the presenter a student? (STUDENT or NOT A STUDENT)
Line 8: Special equipment needs (anything in addition to standard computer, computer projector, and PowerPoint)
Line 9 ff: Paper Title Italicized and in Title Case, AUTHOR’S NAME(S) (Full address(es), including institution, mailing address, city, state, zip code, and e-mail address(es)). Refer to the example below for additional information.


Example of a properly formatted abstract submission (lines 9 ff and 10 ff), plus additional information

Formatting an Abstract for Submission to a Pacific Division Section Chair and the AAASPD Meetings Office, SAMUEL P KRAFT-ER†, YESIMAN AUTHOR1, and IDIDA DeREADING2 (1Department of Biology, Southern Oregon University, 1250 Siskiyou Boulevard, Ashland, OR 97520; 2Department of Academic Speech, Bureau of Speech Employment, 12 Back Street, Medford, OR 97504; spkraf@biology.sou.edu).

All authors should be listed sequentially, starting with the person who contributed the most to the project and presentation and ending with the person who contributed the least. If more than one address occurs among the authors, use a superscripted number on the right of each author’s last name, followed by the corresponding superscripted number at the start of each unique address. Place an asterisk (*) next to the last name of the presenter. Submissions not formatted in this manner may be returned for reformatting or rejected.

Indent the first line of each paragraph of your abstract (Line 10 ff) 0.25 inches by using the first line indent command of your word processor. Do not use a tab or the spacebar! All text should be full justified.

Use 10 pt Times New Roman font and “NORMAL” style for the entire submission. If you use a different font or style, your abstract will be reformatted to this font and style. If your text contains special characters, they likely won’t accurately survive e-mailing and/or any required reformatting. Thus, in addition to an e-mail submission, hard copies of abstracts that contain special characters should be faxed (541-552-8457) or mailed to the Pacific Division office. When doing this, be sure to point out special characters in your abstract and identify the font set that contains them. If exotic fonts are used, we probably won’t have them available, so use common font sets (e.g. Symbol, Wingdings, etc.) for your special characters!
Members of AAAS and its affiliated societies, students, teachers and other scientists are encouraged to participate in the 2017 annual meeting by developing symposia, workshops, and/or field trips. Persons wishing to develop a program for the Hawai`i meeting should e-mail the title, description and other information (see instructions below) to the Pacific Division office at rchristi@sou.edu.

**Symposia** may be 1/2-day, full-day or longer. Individual symposium presentations are scheduled at 30 minute intervals. Exceptions, depending on the needs of the symposium, may be longer, shorter, or even a combination of the two. Please contact Dr. Roger Christianson, Pacific Division Executive Director, to discuss your specific needs. When preparing your submission, indicate which presenters are confirmed and which are not (see Line 10 below). If you do not yet have a list of presenters, you may submit a list of potential presentation topics. Please keep in mind that we need as much information as early as possible in order to adequately evaluate and publicize the symposium. Abstracts for symposium presentations are due into the planner's hands by 1 April 2017 and sent as a batch to the Pacific Division office by 8 April 2017.

**Workshops** generally are 1/2-day or full-day and may or may not accompany a symposium. If special facilities and/or equipment are required, be sure to identify what you need as completely as possible in your submission (see Line 10 below). If a cost is incurred, it will be passed along to participants as a workshop fee in addition to the ordinary meeting registration fee.

**Field Trips.** Depending on the subject matter, field trips generally vary in length, and distance travelled. If you are interested in proposing a field trip for the Hawai`i meeting, please download the Division’s field trip instructions from this link: http://associations.sou.edu/aaaspd/FTFform.pdf and submit pages 3 and 4 with your proposal.

**Questions?** Contact Dr. Roger Christianson, Phone: 541-552-6747, e-mail: rchristi@sou.edu.

Please format your submission as follows:

1: Organizer’s name and full mailing address, including academic/professional affiliation, telephone number and e-mail address
2: Co-organizer’s name(s) (if any) and full mailing address, including academic/professional affiliation, telephone number and e-mail address
3: Is this a Workshop or a Symposium?
4: Do you expect any students to be presenters in this program? If so, how many?
5: Number of 1/2-day sessions requested (a session is roughly three to three and a half hours, plus a mid-session break).
6: Pacific Division section(s) and/or affiliated society requested to sponsor this program (see page 30 of this Newsletter). Note: You must identify at least one section or society to sponsor your program.
7: Title of proposed program
8: Brief description of proposed program (please limit to 250 words)
9: If a symposium, list the names of proposed (confirmed?) speakers, including academic/professional affiliation, and e-mail address for each. Presentation titles are optional at this time and will be requested later, along with an abstract for each presentation.
   If a workshop, indicate facilities and/or special equipment required and number of participants that can be accommodated.

541-552-6747 • rchristi@sou.edu • http://pacific.aaas.org
On-Campus Housing Application

One form must be submitted for each individual requesting campus housing.
Type or print this form legibly! If faxing, use black ink. All blanks must be filled in.

Name __________________________________________________________________________
☐ Male ☐ Female

Address _________________________________________________________________________

City, State, Zip __________________________________________________________________

Phone (day): __________________ Phone (evening): __________________ E-mail: ____________

For double occupancy: name of requested roommate ____________________________________ or ☐ assign roommate

For double occupancy, if no roommate specified, roommate will be assigned.

Refer to page 13 of this Newsletter for a description of the accommodations and options listed below.

Housing Request:

Three night basic housing package –
Check in Tuesday, 14 June, check out Friday, 17 June
Includes $30.00 meals cash.
☐ Single, per person $350.00
☐ Double, per person $260.00

Four night basic housing package –
Check in Tuesday, 14 June; check out Saturday, 18 June
Includes $40.00 meals cash.
☐ Single, per person $465.00
☐ Double, per person $345.00

Additional nights must be in conjunction with a three or four night basic package. They do not include any meals cash.
☐ Single, per person $106.00 per night
☐ Double, per person $75.00 per night
☐ Sunday, 12 June
☐ Monday, 13 June
☐ Saturday, 18 June
☐ Sunday, 19 June

Total for housing $________

Parking Permit:

# nights in housing ___ X $5 per night $_____

Total Amount Due $_______

Deadline for Application

The completed application for housing must be received in the Pacific Division office no later than 10 May 2016. Space is on an “as available” basis.

Three Ways to Apply for Housing

1. Complete this form and send it to the Pacific Division office, either with a check in the full amount payable to AAAS, Pacific Division, or with credit card information completed below.
2. Call the Pacific Division office, 541-552-6869, between approximately 12:30 p.m. and 4:30 p.m. Pacific Time. Your information will be taken, along with the appropriate credit card information.
3. Fax your housing request, including credit card information. The 24-hour fax number is 541-552-8457. It is a dedicated line into the Pacific Division’s office.

Cancellation/Refund Policy

All cancellation/refund requests for housing must be made in writing to the Pacific Division office via USPS or e-mail. Requests must be received no later than 10 May 2016. Refunds are subject to a $15 processing charge and an additional 3.5% of the total if payment was by credit card.

Payment by Credit Card

Type of Card ☐ Visa ☐ Master Card ☐ Discover ☐ Am Ex

Card Number ____________________________________________ Expiration Date ________ Today’s Date ________

Name on Card (print) __________________________ Complete Card Billing Address _______________________

Cardholder Signature ___________________________ City ________ State ________ Zip ________
ADVANCE REGISTRATION FORM
FOR EARLY REGISTRATION, FIELD TRIPS, and OTHER SPECIAL EVENTS

A separate form must be filled out and submitted for each registrant.

Submit this form by
mailing it to AAAS, Pacific Division • Southern Oregon University • 1250 Siskiyou Blvd • Ashland, OR 97520
or calling with information: 541-552-6869 or FAXing to our dedicated line: 541-552-8457

PRINT CLEARLY or TYPE this form! If faxing, use only black ink!

Name: _______________________________ Date: ____________________

Mailing Address: _______________________________________________________________________

City, State, Zip: _______________________________________________________________________

E-mail: _______________________________ Day Phone: _______________________________

Institution/Company (for your name tag – if blank, city & state will be used): _______________________________________

Memberships: AAAS Yes No Sigma Xi Yes No

How did you first hear about this meeting? _____________________________________________________________

Are willing to help judge student presentations at this meeting? Yes No

Please see page 3 of this Newsletter for information about judging. If you check the “yes” box, you will be contacted for additional information.

Check all that apply: presenter program planner field trip planner maker exhibitor

If box checked above, in which program, field trip, or section? __________________________________________

(above must be filled out in order to receive program planner/presenter rate)

A. MEETING REGISTRATION FEES:

<table>
<thead>
<tr>
<th></th>
<th>Received by 22 April</th>
<th>Received by 27 May</th>
<th>On-site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Meeting Professional</td>
<td>$105.00</td>
<td>$120.00</td>
<td>$135.00</td>
</tr>
<tr>
<td>Professional</td>
<td>$70.00</td>
<td>$80.00</td>
<td>$90.00</td>
</tr>
<tr>
<td>Presenter/Planner Teacher K-14</td>
<td>$52.50</td>
<td>$60.00</td>
<td>$67.50</td>
</tr>
<tr>
<td>Teacher K-14</td>
<td>$52.50</td>
<td>$60.00</td>
<td>$67.50</td>
</tr>
<tr>
<td>Post- Doc</td>
<td>$52.50</td>
<td>$60.00</td>
<td>$67.50</td>
</tr>
<tr>
<td>Post-Doc</td>
<td>$52.50</td>
<td>$60.00</td>
<td>$67.50</td>
</tr>
<tr>
<td>Unemployed</td>
<td>$52.50</td>
<td>$60.00</td>
<td>$67.50</td>
</tr>
<tr>
<td>Spouse/Family</td>
<td>$35.00</td>
<td>$40.00</td>
<td>$45.00</td>
</tr>
<tr>
<td>Emeritus/Retired</td>
<td>$52.50</td>
<td>$60.00</td>
<td>$67.50</td>
</tr>
</tbody>
</table>

1Student registrations include a one-year student membership with AAAS, including on-line access to Science magazine. Be sure to fill out and include the membership form on page 37 of this Newsletter when you register for the meeting.

One-day of Meeting

<table>
<thead>
<tr>
<th></th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td>$70.00</td>
<td>$80.00</td>
<td>$90.00</td>
<td>Select day: Tues Wed Thurs Fri</td>
</tr>
<tr>
<td>Field Trip Only</td>
<td>$10.00</td>
<td>$10.00</td>
<td>$10.00</td>
<td>$10.00</td>
</tr>
</tbody>
</table>

B. DIVISION BANQUET: The Division banquet will be held on the evening of Thursday, 16 June and will include announcements of the student award winners. Students who are registered for the meeting and who present either orally or a poster are invited to be guests of the Division at the banquet and do not have to pay to attend but must check the appropriate box below. Refer to page 21 in this Newsletter for descriptions of the entrées.

Student presenter ticket @ no charge (choose one): Chicken Pork Vegetarian

Tickets @ $50.00 ea. Indicate quantity next to each choice: ___ Chicken ___ Pork ___ Vegetarian

Complete page 36 before submitting.

Student registrants must also complete and return page 37.
C. FIELD TRIPS: All trips are priced per person (pp). See page 21 of this Newsletter for details.

**Tuesday, 14 June**
Field Trip #1 Ramona Winery Explorations ___ tickets @ $50.00 pp $ __________
Lunch on your own at Panera Bread

**Friday, 17 June**
Field Trip #2 Breweries of San Diego ___ tickets @ $42.00 pp $ __________
Box lunch choice: ☐ meat sandwich ☐ vegetarian sandwich

A. Registration Total $ __________
B. Banquet Total $ __________
C. Field Trips Total $ __________

TOTAL DUE $ __________
(Make checks payable to AAAS, Pacific Division or use your credit card – see below.)

**PLEASE NOTE:** Requests for refunds must be in writing and be received in the Pacific Division office no later than 10 May 2016. A $15 handling fee will be applied. An additional 3.5% deduction will be applied to the total amount for credit card refunds.

D. RECEPTIONS: To help estimate the number of people planning to participate in the events listed below, please indicate the number of people in your party that plan to attend each event.

___ **Tuesday Evening Reception** (no charge to registrants and family members)
___ **Wednesday Evening Reception** (no charge to registrants and family members)

**CREDIT CARDS**
To pay for your advance registration by credit card, you may
• mail this completed form to the address below, or
• phone the information to 541-552-6869 between about 12:00 p.m. and 4:00 p.m. Pacific Time, or
• fax this completed form to 541-552-8457 (dedicated fax line into the Pacific Division office).

Type of Card: ☐ Visa ☐ Master Card ☐ Discover ☐ AmEx
Credit Card Number ____________________________________________ Expiration Date _______________
Name on Card __________________________________________________________________________
Complete Billing Address for Card __________________________________________________________
Signature of Cardholder ___________________________________________ Date ________________

COMPLETE AND RETURN THIS FORM WITH YOUR PAYMENT TO:
AAAS, Pacific Division • Southern Oregon University • 1250 Siskiyou Blvd • Ashland, OR 97520, or
call us with the information: 541-552-6869, or FAX us this form: 541-552-8457
Should you have questions, e-mail us at aaaspd@sou.edu or call 541-552-6869 M – F 12:30 p.m. to 4:30 p.m., Pacific Time.
STUDENTS!

Students must fill out this form and return it along with their Advance Registration Form in order to receive their one-year membership in AAAS! This form is for use only by students who are registering for the 2016 Annual Meeting of the AAAS, Pacific Division in San Diego, California.

![Student Membership Application Form]

Includes AAAS Membership, Full-Text *Science* Online, and Full Member Benefits

**Name and Address** Please print clearly

- Check here if this is a renewal. AAAS number, __________

---

**E-mail Privacy**

Please check one:

- I want to receive occasional e-mails from AAAS/Science, including those on scientific products and services offered by outside organizations. I understand that the e-mails will be sent by AAAS/Science or its agent, and my e-mail address and information will not be exchanged or disclosed to the outside organization.

- I only want to receive e-mail about AAAS/Science activities, services, and publications.

---

**Mailing List Privacy**

Please check one:

- From time to time, AAAS/Science releases names and addresses to outside organizations for mailings that may be of interest. Income from the mailing list supports the activities of the Association and helps to keep member dues rates down.

- I want to receive mailings from outside organizations that AAAS/Science deems of interest.

- I only want to receive mailings from AAAS/Science.
**Pacific Division Publications**

**wow!!! B1G Book Giveaway wow!!!**

Select Up To Any Three Books Listed Below for FREE!*

With this form only - 1 giveaway per person • Giveaway ends 1 May 2016

*Does not apply to Art Inspired by Science.

'Must pay standard shipping - see below.

Additional books at list prices.

Please PRINT CLEARLY or TYPE. If faxing, use black ink.

---

Agroecosystems and the Environment: Source, Control, and Remediation of Potentially Toxic, Trace Element Oxyanions (1998; cloth, 213 pp. – ISBN 0-934394-12-1); $20.00

Art Inspired by Science (2012; paper, 50 pp., 38 color plates – ISBN 978-0-9849810-0-7); $15.00

Biodiversity and Taxonomy (2005; paper, 236 pp. – ISBN 0940228-62-9); $35.00


Crater Lake: An Ecosystem Study (1990; cloth 224 pp. – ISBN 0-934394-07-5); $26.95

Dietary Factors and Birth Defects (1993; paper, 410 pp. – ISBN 0-934394-08-03); $28.50


Geneology and Ecogeographic Races (1995; cloth, 275 pp. – ISBN 0-934394-10-5); $28.95

Late Cenozoic History of the Pacific Northwest (1985; cloth, 417 pp. – ISBN 0-934394-06-7); $28.95

Patterns of Evolution in Galapagos Organisms (1983; cloth, 568 pp. – ISBN 0-934394-05-9); $32.50

Museums and Other Institutions of Natural History: Past, Present, and Future (2004; paper, 325 pp. – ISBN 0-940228-60-2); $35.00

San Francisco Bay: The Ecosystem (1996; cloth, 542 pp., color plates – ISBN 0-934394-11-3); $45.00

San Francisco Bay: Use and Protection (1982; paper, 310 pp. – ISBN 0-934394-04-0); $17.95

Proceedings Series

- Meeting Program with Abstracts (Proceedings Vol. 1, Part 1, 1982 through Vol. 33, Part 1, 2014); $12.00 each
- Evolutionists Confront Creationists (Proceedings Vol. 1, Part 3, 1984; paper, 213 p.); $12.00
- Scientific Research and New Religions (Proceedings Vol 2, Part 2, 1985, paper, 180 pp.); $12.00

Address orders to: AAAS, Pacific Division • Southern Oregon University • 1250 Siskiyou Blvd. • Ashland, OR 97520

Phone orders: 541-552-6869 • dedicated FAX orders: 541-552-8457 • E-mail orders: aaaspd@sou.edu

**ALL SALES FINAL — NO RETURNS**

Payment must accompany all orders. Make checks payable to AAAS, Pacific Division.

<table>
<thead>
<tr>
<th>Quantity*</th>
<th>Title</th>
<th>Price Each</th>
<th>Total</th>
</tr>
</thead>
</table>

*Maximum 3 of any one title.

Contact us for quantity orders.

---

**SHIPPING (see note to left)**

TOTAL DUE WITH ORDER

**CREDIT CARD**

- Visa
- Master Card
- Discover
- American Express

Credit Card # ___________________________ Expiration Date __________

Name on Card ___________________________ Signature of Cardholder ___________________________

Complete Billing Address for Card ______________________________________________________________

---

Page 38   E-mail us at aaaspd@sou.edu
AAAS, Pacific Division
97th Annual Meeting
University of San Diego
San Diego, California
14 – 17 June 2016
PRELIMINARY ANNOUNCEMENT of SYMPOSIA,
FIELD TRIPS and OTHER EVENTS

SYMPOSIA
(a sampling; complete list starts on page 22)
• Current Understanding and Data Gaps for Bahía de los Ángeles, an International Biosphere Reserve
• Not Just a Walk in the Park: Ecology and Education in Mission Bay, San Diego
• Particles in the San Diego Atmosphere: Reactions, Properties, Climate, and Health
• Bahía de San Quintín: The Status, Threats, and Solutions for One of the Last Intact Coastal Lagoons in Western North America
• How Ocean Acidification and Ocean Warming Could Influence the Functional Morphology and Ecology of Intertidal Organisms
• Scientific Maker Symposium and Exchange
• Library Science Symposium: The Evolving Library
• Mentoring and Deeper Learning in STEM Education
• Quantum Retrocausation III
• Forensic Psychological Science on the Violence of Terroristic Groups: An Antiterrorism Threat Assessment Paradigm
• Conducting Mental Health Research in the Community Setting for the Benefit of Underserved Populations
• Boise Extravaganza in Set Theory (BEST)
• Philosophers of Biology Engaging the Biosciences
• At the Crossroads of Global Water Issues: An Interdisciplinary Perspective
• Climate Change Communication: Getting the Message Across to Diverse Audiences

FIELD TRIPS
(starting on page 21)
• Ramona Winery Explorations
• San Diego Microbrewery Field Trip

WORKSHOPS
( starting on page “Workshops” on page 21)
• An Introduction to Grant-Writing for Foundations for Those in the Sciences, Social Sciences, Education and the Humanities

SCIENTIFIC MAKER DAY
(see pages 15 and 21)

NOTE: These programs are being planned as of 5 January 2015. However, changes in offerings frequently occur. For up-to-date information, please visit the Pacific Division website, pacific.aaas.org