

OUTREACH EFFORTS OF THE COMMITTEE ON DIVERSITY IN ACOUSTICS

Juan I. Arvelo, Jr.

Johns Hopkins University, Applied Physics Laboratory
National Security Technology Department
Laurel, Maryland 20723-6099

The Acoustical Society of America (ASA) recently formed the Ad-Hoc Committee on Diversity in Acoustics (CDA). This committee is charged with exploring and proposing activities designed to attract members of under-represented groups to the profession of acoustics, to encourage diversity members to join the Society and to become active participants in sessions and committees, to assist them to strive for fellowships, and to encourage them to accept leadership positions in the Society.

The committee strives to institutionalize constructive adjustments to the Society and to participate in outreach efforts. Institutionalized changes include the approval of the following diversity statement:

The Acoustical Society of America is committed to making acoustics more accessible to everyone, and asserts that all individuals, regardless of racial identity, ethnic background, sex, gender identity, sexual orientation, age, disability, religion, or national origin, must be provided equal opportunity in the field of acoustics. The Society upholds the belief that diversity enriches the field of acoustics, and is working to diversify its membership and the acoustics community in general by identifying barriers to implementing this change, and is taking an active role in organizational and institutional efforts to bring about such change. The Society actively supports efforts by the acoustics community to better engage the knowledge and talents of a diverse population, increase the viability of acoustics as a career option for all individuals, and promote the pursuit of acoustics careers by members of historically under-represented groups.

As conveyed in the article “What can we learn about diversity from statistics on acoustics?” by Susan White and Rachel Ivie, in this issue of *Acoustics Today*, it is of utmost importance to collect demographic information from the ASA members to better track progress made by these changes and outreach efforts. These efforts were mainly in the form of active participations in conferences focused on welcoming and informing underrepresented undergraduate and K-12 students interested in the sciences.

National Society of Black Physicists (NSBP)/National Society of Hispanic Physicists (NSHP) 2008 Conference

Exposing university-level minority students and professors to acoustics is key for increasing membership diversity in the Society. In an initial attempt to pursue this goal, two acoustics sessions were coordinated at the joint conference of the NSBP and the NSHP, which was held February 21-24, 2008, in Washington, DC.

“The Acoustical Society of America is committed to making acoustics more accessible to everyone.”

The conference was well attended by 250 minority students and 200 professionals. About 60 exhibit booths from industry, government, and professional organizations were present ready to recruit potential under-represented minorities.

This was the first time that acoustics sessions were held in this

annual conference. Speakers in these sessions included Tyrone Porter (Boston University), Mawuli Dzirasa (Johns Hopkins University Applied Physics Laboratory), Joshua Atkins (Johns Hopkins University), Max Denis (University of Massachusetts Lowell) and Juan Arvelo. The topics ranged from medical ultrasound, transducers, noise control, signal processing, and structural acoustics.

Professor Emeritus Uwe Hansen (Indiana State University) conducted hands-on demonstrations allowing students the opportunity to experience acoustic levitation, standing waves, sound transmission, structural vibrations, Doppler frequency shift, and more. With their eyes (and ears) wide-open and big smiles on their faces, students gathered around the demonstration tables to confirm their observations and to take pictures and videos with their cell phones and cameras as evidence to show their friends and relatives.

NSBP/NSHP 2009 Conference

In collaboration with the Committee on Education in Acoustics, members of the Committee on Diversity in Acoustics coordinated various acoustics-related events at the 2009 joint NSBP/NSHP annual conference during 11-14 February 2009 in Nashville, TN. About 650 registrants, 350 university students, and 80 exhibitors attended this conference.

Immediately after the opening reception, Uwe Hansen conducted a musical acoustics demonstration with members of the Nashville Jazz Orchestra. The demonstration included discussion of wave propagation and standing waves with a long spring and spectral analysis of each musical instrument to explain the physical mechanisms responsible for their unique spectral characteristics and harmonics. The discussion of each musical instrument was followed by the performance of a musical piece featuring that instrument.

A total of 157 technical presentations from a wide range of Physics subfields were delivered during the following three days of the conference. Professor Tyrone Porter chaired the acoustics technical session with professors Erica Ryherd (Georgia Tech), David T. Bradley (Vassar College), and Juan Arvelo as invited speakers. Juan's talk was geared to exposing

students and faculty to acoustics as a suitable introduction to Physics for today's iPod generation. Erica introduced the audience to the psychological and physiological effects of sound as an example of how acoustics spreads beyond the realms of Physics. David delivered a presentation on the measurement and prediction state of the art for sound scattering from reflective surfaces used in architectural acoustics.

The University Students' Acoustics Poster Competition (USAPC) was held on the last day of the conference. The three judges were professors Anthony Atchley (Penn State), Uwe Hansen, and Juan Arvelo. The first place award went to Billy Andre for his poster entitled "A pre-treatment planning strategy for High Intensity Focused Ultrasound (HIFU) treatments." Candido Diaz was awarded second place for his poster "Experimental quantification of acoustic scattering from diffusers: Reverberation chamber design and measurement." The third place was awarded to Norman Philipp for the poster "Analysis of existing modular classroom acoustics for proposed addendum to ANSI standard S12.60-2002 on classroom acoustics."

In addition to these events, an ASA exhibit booth was made available to welcome and inform curious faculty and students. Finally, Professor Hansen conducted acoustics demonstrations throughout the entire conference in the grand exhibit hall. The demonstration tables were occupied with several instruments including long springs, wine glasses, shakers and plates forming Chladni patterns, tuning forks, laptops with spectral analysis software, an acoustic levitation instrument, and an active noise cancellation headset.

Society for Advancement of Chicanos and Native Americans in Science (SACNAS)/ Society of Mexican American Engineers and Scientists (MAES) 2010 Conference

More recently, an ASA exhibition booth was installed at the joint conference of SACNAS and MAES. The 2010 SAC-



Fig. 1. Society for Advancement of Chicanos and Native Americans in Science (SACNAS)/ Society of Mexican American Engineers and Scientists (MAES) 2010 Conference banquet dinner and keynote address.

NAS/MAES National Conference was held at the Anaheim Convention Center from September 30 to October 3. This was the largest conference with 3196 registered attendees, 311 exhibition booths and 80 conference sessions. SACNAS awarded 975 student travel scholarships while 875 graduate and undergraduate students delivered oral and poster presentations of their research.

The ASA exhibit booth distributed acoustics literature and membership forms in addition to earplugs with

storage containers, luggage tags, and sticky notepads bearing the ASA logo. Acoustics demonstrations were conducted at the ASA exhibit booth with springs, tuning forks, and sound pipes. ASA participation also included judging physics posters and mentoring students. Several students expressed interest in fields spanning from transducer engineering, musical acoustics, psychological acoustics, physical acoustics and bioacoustics, to mathematical and computational acoustics.

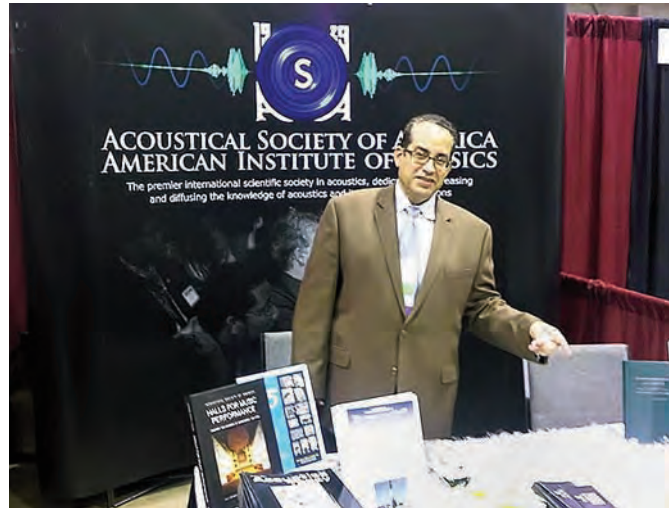
The conference's focus on student support and networking resulted in an overwhelming positive feedback from students, professors, and exhibitors.

Open invitation

The committee also formed the 2010 Acoustics Music & Video (AMV) Student Competition to encourage students to develop electronic videos and audio pieces promoting acoustics to expose and attract new generations of future acousticians. The entrees from the top winners may be accessed at: <http://acosoc.org/diversity/Diversity.html>

An acoustics education resources segment was also added in an effort to assist in preparing and conducting acoustics demonstrations and introductory lectures at public schools, community colleges, and minority-serving institutions.

An invitation is extended to everyone who may wish to join the committee and contribute to future acoustics outreach efforts.



Juan Arvelo is a physicist at the Johns Hopkins University Applied Physics Laboratory while on a part-time sabbatical at the Johns Hopkins University. He earned a Ph.D. degree in physics from the Catholic University of America in Washington, DC in 1990. Juan is an active member of the Acoustical Society of America (ASA) and the American Institute of Physics (AIP) where he holds various positions including associate editor of the Proceedings of Meetings on Acoustics, co-chair of the ASA committee on regional chapters, ASA liaison to the AIP committee on underrepresented minorities, chair of the committee on diversity in acoustics, and technical chair of the 159th ASA meeting in Baltimore.

HIGH-PERFORMANCE ABSORPTIVE NOISE BARRIERS

BY SOUND FIGHTER SYSTEMS

WWW.SOUNDFIGHTER.COM



FEATURE APPLICATION: HVAC

- Rooftop or ground-level designs
- Eliminates need for full enclosures
- No heat buildup or explosion risk
- Superior Noise Reduction
- Access Doors or Gates available
- 100% Sound Absorptive (NRC 1.05)
- Custom Color-Match
- Maintenance-Free
- Fast Turnaround

Sound Fighter Systems designs, engineers and fabricates the LSE Noise Barrier System in-house for every project. We have unmatched flexibility in designing a barrier best suited for the task at hand. We can design barriers up to 50 feet and wind loads to 200 miles per hour.



Sound Fighter Systems, L.L.C.
P.O. Box 7216
Shreveport, LA 71137

866.348.0833 // T
318.865.7373 // F
info@soundfighter.com // E
www.soundfighter.com // W