

COMMITTEE ON EQUAL OPPORTUNITIES IN SCIENCE AND ENGINEERING

Meeting Minutes October 30-31, 2008

Meeting Site

National Science Foundation (NSF), Room 1235 S; 4201 Wilson Boulevard; Arlington, Virginia
22230

Meeting Participants

Members Present:

Dr. Wesley L. Harris, CEOSE Chair, Massachusetts Institute of Technology, Cambridge, MA
Dr. Beverly Karplus Hartline, Delaware State University, Dover, DE
Dr. Richard E. Ladner, University of Washington, Seattle, WA
Dr. Robert L. Lichter, Merrimack Consultants, LLC, Great Barrington, MA
Dr. Marigold Linton, University of Kansas, Lawrence, KS
Dr. Theresa A. Maldonado, CEOSE Vice Chair, Texas A & M University, College Station, TX
Dr. William C. McCarthy, New Mexico State University, Las Cruces, NM
Dr. Samuel L. Myers, Jr., HHH Institute of Public Affairs, University of Minnesota,
Minneapolis, MN (Virtual Participation from China where he is at the Chinese Academy
of Social Science)
Dr. Maria Ong, TERC, Cambridge, MA

Members Absent:

Ms. Sandra Begay-Campbell, Sandia National Laboratories, Albuquerque, NM
Dr. Joseph S. Francisco, Purdue University, West Lafayette, IN
Dr. Mae C. Jemison, The Jemison Group, Houston, TX
Dr. Muriel Poston, Skidmore College, Saratoga Springs, NY

CEOSE Executive Liaison/CEOSE Executive Secretary:

Dr. Margaret E. M. Tolbert, Senior Advisor, Office of Integrative Activities, NSF

OIA/NSF Primary Support Staff Members and The Mississippi eCenter of JSU Support Staff:

Ms. Camiel Brown, Business Manager, Mississippi eCenter of JSU
Ms. Jacquelyn A. M. Daniel, Program Assistant, Mississippi eCenter of JSU
Ms. Geri Farvés, IT Specialist, Office of Integrative Activities/NSF
Ms. Denita Norris, Program and Technology Specialist, Office of Integrative Activities/NSF
Ms. DeCarla Irene Staten, Public Affairs Assistant, on Detail to Office of Integrative Activities/NSF

Non-Members Who Presented Oral or Written Statements, Participated in the Discussions and/or Were Meeting Attendees without Specific Roles:

Ms. Carrie L. Billy, J.D., American Indian Higher
Education Consortium
Ms. Mary Lee M. Brown, Springfield, VA
Dr. Barbara C. Bruno, C-MORE/U. of Hawaii
Dr. Joan Burrelli, SRS/SBE/NSF

Dr. David W. Lightfoot, SBE/NSF
Ms. Colleen Linzy, Beyond The Bottom Line, Inc.
Dr. Vicky Lytle, CReSIS/U. of Kansas
Dr. Cora Marrett, EHR/NSF
Dr. J.V. Martinez, Office of Science/DOE

<p> Dr. Wayne Carrenson, OISE/NSF Dr. Margaret Cavanaugh, GEO/NSF Dr. Tony F. Chan, MPS/NSF Dr. Walter V. Collier, C&A Technologies, Inc. Dr. James P. Collins, BIO/NSF Dr. Diana Dalbotten, NCED/U. of Minnesota Dr. Frederica Darema, CISE/NSF Dr. Anselm G. Davis, White House Initiative on Tribal Colleges and Universities Ms. Corinda Davis, Beyond The Bottom Line, Inc. Dr. Kristen Dorans, American Chemical Society Dr. Karl A. Erb, OPP/NSF Dr. Michael Fredenberg, HRD/EHR/NSF Dr. Joan Frye, OIA/OD/NSF Dr. Clifton Gabriel, OD/NSF Dr. Gerald E. Gipp, American Indian Higher Education Consortium Ms. Tracy Gorman, OD/NSF Dr. W. Lance Haworth, OIA/NSF Mr. Robert Hughes, American Chemical Society Ms. Brenda M. Jamerson, Captioner of Debates/US Senate/Office of Captioning Services Dr. Kathryn Kailikole, Stokes Institute Dr. Jill Karsten, GEO/NSF Dr. Fae Kosmo, OD/NSF Dr. Meka Laster, NOAA Dr. Mark Leddy, HRD/EHR/NSF </p>	<p> Dr. LaRuth C. McAfee, CliPS/Case Western Reserve University Dr. William E. McHenry, The MS eCenter/JSU Dr. Carty Monette, QEM, Inc. Dr. Gisèla Muller-Parker, DGE/EHR/NSF Dr. Josè Muñoz, OCI/NSF Ms. Deborah Narcisso, AURA Dr. Kathie L. Olsen, OD/NSF Dr. Sonia Ortega, DGE/EHR/NSF Dr. Julie Palais, OPP/NSF Dr. Carl Person, NASA Dr. Randy Phelps, OIA/NSF Dr. Paul Racette, NASA Dr. Michael M. Rieschman, ENG/NSF Dr. Celeste Rohlfing, MPS/NSF Mr. Lawrence Rudolph, J.D., OGC/NSF Dr. Amy Sharma, CISE/NSF Dr. Simon N. Stephenson, OPP/NSF Dr. Elizabeth Strickland, NSB Office Dr. Michael L. Van Woert, OPP/NSF Dr. Aaron Velasco, SACNAS Dr. Larry H. Weber, OISE/NSF Dr. Jennifer Wilson, Lewis-Burke Associates Dr. Jeannette Wing, CISE/NSF Dr. S. Wosu, U. of Pittsburgh Dr. Sarah Yue, OISE/NSF </p>
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Meeting Notes

Thursday, October 30, 2008

Welcome, Opening Remarks, and Introductions: Dr. Wesley L. Harris, CEOSE Chair

The meeting was called to order at 8:40 a.m. by **Dr. Wesley L. Harris**. General introductions were made. CEOSE members concurred with the minutes of the June 16-17, 2008 meeting, which **Dr. Harris** approved earlier due to the 90-day deadline requirement. **Dr. Harris** presented certificates to **Drs. Beverly K. Hartline and Robert L. Lichter** and commended them for their service to CEOSE and, hence, NSF. Their CEOSE membership terms will end on January 31, 2009. **Drs. Hartline and Lichter** accepted the certificates, commented on the renaissance of CEOSE and the engagement of its members, and spoke of the need for a geoscientist on the Committee.

In the report on his presentation to and discussion with members of the Subcommittee on Education of the NSTC Committee on Science, **Dr. Harris** noted the efforts of **Dr. Cora Marrett** in making the meeting with the subcommittee possible. **Drs. Lance Haworth** and **Margaret E. M. Tolbert** joined with **Dr. Harris** in the Subcommittee on Education discussion part of the meeting where they carried forth the idea that CEOSE developed some two years ago to leverage activities pertinent to its congressional mandate. The goal was to join hands with colleagues across the city, representatives of those federal agencies that are active in Science, Technology, Engineering, and Mathematics (STEM) as a part of their missions, and through those activities, to look for ways to broaden participation. Recall the draft report that contains STEM broadening participation information from ten Federal agencies. That report, which has not been published, provided a foundation for action and points for discussion at several meetings. The first steps

taken were conversations with **Dr. Arden L. Bement, Jr.**, **Dr. Kathie L. Olsen**, and other members of the NSF senior management group. Later, a conversation was held with members of the Subcommittee on Education of the NSTC committee on science.

Several questions were raised by **Dr. Wesley L. Harris** at the meeting. Examples follow: Is there a common broadening participation language across Federal agencies? Does your agency have an organization, group, committee that functions like CEOSE? Is there a broadening participation structure at your agency and a person who is responsible for it? If so, what is that person's level of authority? The subcommittee was requested to recommend to CEOSE some steps to take relative to broadening participation. Overall, the meeting was very effective and useful, and **Dr. Harris** expressed interest in keeping the interactions active as CEOSE moves forward.

In another important activity, **Drs. Hartline** and **Harris** were participants in the National Science Board Workshop on Cost Sharing. The major point that they called to the attention of workshop participants is that cost sharing should be sensitive to its implications and impact on Minority Serving Institutions, especially the Historically Black Colleges and Universities. They also took advantage of the opportunity to talk about CEOSE, its mission and activities focused on moving toward convergence of the face of America with the face of American science.

Dr. Harris advised that this is his last meeting as CEOSE Chair; however, he will be continuing as a member. **Dr. Theresa A. Maldonado's** term as CEOSE Chair will begin on February 1, 2009. **Dr. Harris** identified several action items. **ACTION ITEM: Dr. Maldonado** is to select a CEOSE Vice Chair prior to the February meeting. **ACTION ITEM:** CEOSE needs to identify additional members; the limit is 15 members. **ACTION ITEM:** Balance must be created in CEOSE membership; therefore, appointments of a community college official and a geoscientist must be made. **ACTION ITEM:** The list of CEOSE Liaisons to NSF advisory committees needs to be reviewed and liaisons named as needed. **ACTION ITEM:** CEOSE should continue reaching out to establish partnerships with Federal agencies. **ACTION ITEM:** CEOSE members are to review the charge of each *ad hoc* subcommittee, and advise of needed changes. The charges will be placed on the CEOSE website.

Ad hoc subcommittee membership is as follows; however, other members are welcome to join these groups:

- CEOSE *Ad Hoc* Subcommittee on Accountability, Evaluation, and Communications -- **Dr. Wesley L. Harris** (Subcommittee Chair), **Theresa A. Maldonado**, **Samuel L. Myers, Jr.**, and **Maria (Mia) Ong**.
- CEOSE *Ad Hoc* Subcommittee on Strategic Planning – **Dr. Muriel Poston** (Subcommittee Chair), **Dr. Joseph Francisco**, **Dr. Beverly K. Hartline**, **Dr. Robert L. Lichter**, **Dr. Marigold Linton**, **Dr. Theresa A. Maldonado**, and **Dr. Samuel L. Myers, Jr.**
- CEOSE *Ad Hoc* Subcommittee on Broadening Participation -- **Dr. William C. McCarthy** (Subcommittee Chair), **Dr. Richard E. Ladner**, **Dr. Marigold Linton**, and **Dr. Muriel Poston**.

As a result of the work of CEOSE members and NSF senior managers, two new members have been appointed to CEOSE by **Dr. Arden L. Bement, Jr.** They are **Dr. Evelyn Hammonds** of Harvard University and **Dr. Alex Ramirez** of the Hispanic Association of Colleges and Universities. Biographical information on both was included in the meeting binder.

Presentation

Ms. Carrie L. Billy, J.D., President and CEO of the American Indian Higher Education Consortium, spoke on “American Indian Perspective on Broadening Participation in Science and Engineering”. She noted that there are 37 Tribal Colleges and Universities, serving more than 27,000 American Indians in 14 states and thousands more throughout Indian Country – Chartered by federally-recognized tribal governments: Trust Responsibility for Education. Although there are many successes of these institutions, there are numerous needs (e.g., Curb the drop-out rate; have better student engagement; increase STEM proficiency; increase the development of faculty and teachers; increase the funding of Tribal Colleges and Universities; have more comprehensive data collection, and develop and implement better structured evaluation pertinent to tribal communities). She noted that the commitment of the leadership of institutions and the community are very important in developing and sustaining relationships to address issues in the American Indian communities. Her strategy was to describe Tribal Colleges and Universities as institutional change agents that ensure higher education success for American Indians. **RECOMMENDATION: Ms. Billy** recommended that NSF address the immense challenges of American Indian immense retention and remediation by better funding Tribal Colleges and Universities. There is need for systemic reform that significantly increases — and, for the first time, accurately measures — American Indian success in higher education. This is relevant to the indigenous framework for evaluation about which she spoke. The effort is to make it relevant and robust. She also voiced her dissatisfaction with NSF in reference to there having been very little change in broadening participation as noted in the CEOSE biennial reports. In closing, **Ms. Billy** spoke of the need for Native partnerships for synergistic results and responded to questions from meeting attendees.

Presentation

Dr. Aaron Velasco, President of the Society for Advancement of Chicanos and Native Americans in Science (SACNAS), spoke on the topic of “A Perspective on Broadening Participation in Science and Engineering for Chicanos and Native Americans”. He highlighted the changing focus of SACNAS as it positions itself to better address the current STEM workforce that is primarily devoid of the voices of Chicanos and Native Americans, the changing scientific literacy requirements, and the growing Latino population. **Dr. Velasco** spoke of the need for strong national leadership in improving science and math education and an expansion of opportunities for minorities in the scientific workforce and in academia. He spoke of how the generations (e.g., Baby Boomers, Generation X, and Generation Y) play roles in the attitudes about STEM, cultural barriers, and the missing factors. Multicultural programs, a national strategy, greater mobility of students, leveraging resources, and partnerships were among the topics that he identified as needed in order to make positive change. **Dr. Velasco** spoke of the ten-year goals of SACNAS-SHPE-MAES STEM Institute of Excellence (SIE), which are provided below:

- Double the number of the underrepresented minority students pursuing and obtaining Bachelors degrees in STEM.
- Increase by 50% the number of the underrepresented minority students pursuing and obtaining graduate degrees in STEM.
- Coordinate STEM education and research efforts from local, state, and federal agencies and facilitate collaboration with non-profit STEM organizations.

There are many factors that have impact on the pathways to an increase in the number of Chicanos and Native Americans in STEM. Minority, membership based, technical organizations have an important role in impacting the STEM pathway. **Dr. Velasco** complimented NSF on being lean and efficient, and suggested that it needs to fund sustainability too. Additional points (e.g., funds from private sector) were discussed during the question and answer period.

Report & Recommendations from the Mini-Symposium on Native Americans

Dr. Marigold Linton presented the report on the mini-symposium held on October 29, 2008. This mini-symposium was co-sponsored by CEOSE and NSF through the NSF Centers Forum. Each designated discussant and speaker at the CEOSE mini-symposium was asked to submit no more than three recommendations for consideration by CEOSE members for adoption and submission to NSF for action.

Dr. Linton presented the recommendations to the Committee and advised of the need to summarize and categorize them for further consideration and action by CEOSE. The categories and short summaries of the recommendations in draft form follow:

- ✓ NSF Program Changes, K-12 Activities
 - Develop programs for teacher training/professional development sensitive to cultural heritage and customs.
- ✓ Sustained Resources
 - Support long range infrastructure building at Tribal Colleges and Universities and colleges serving Native American populations.
- ✓ Collection of Data and Evaluation
 - Identify and disseminate information about “best practices” in working with Native Americans.
 - Study the differences in education opportunities and success at reservations vs. non-reservation American Indians.
 - Include more Native Americans as NSF proposal reviewers/panelists.
- ✓ Activities of Tribal Colleges and Universities and Other Institutions
 - Develop exchange/visiting programs for scientists and engineers to spend up to two years at Tribal Colleges and Universities, serving as faculty members, researchers, and development resource persons to enhance and strengthen those institutions, their faculty programs, and student academic pursuits.

After reviewing recommendations that resulted from the mini-symposium, **Dr. Linton** advised that additional details on the mini-symposium will be made available on the CEOSE website. **ACTION ITEM:** CEOSE members are to review the summaries of the recommendations resulting from the October 29, 2008 mini-symposium and advise of the ones for submission to NSF for action.

A Conversation with the NSF Deputy Director

The Conversation with **Dr. Kathie L. Olsen**, Deputy Director of the National Science Foundation, was begun with introductions and a brief opening statement by her. She advised that the document titled “NSF Broadening Participation Framework for Action” is a public document now on the Office of the Director’s website (http://www.nsf.gov/od/broadeningparticipation/framework_report.jsp). It outlines NSF’s general strategy for moving forward. She thanked CEOSE members for their endorsement of the Framework and the important role that they have in broadening participation efforts. She also complimented the work of **Drs. Victor Santiago and Celeste Rohlfing**, co-chairs of the Broadening Participation Working Group that developed the Framework. **Dr. Olsen** spoke of NSF advisory committees and the enhanced transparency of the membership appointment process. This inclusiveness process will be initiated by the posting of a general Dear Colleague letter on the NSF website (http://www.nsf.gov/about/performance/dir_advisory.jsp), inviting suggestions from the community for NSF Advisory Committee membership.

Dr. Olsen focused her remaining comments on CEOSE recommendations (Recommendations on Persons with Disabilities and Institutions Serving Persons with Disabilities), which were submitted to NSF for action. She praised CEOSE for raising the awareness of NSF to issues pertinent to institutions serving persons with disabilities in STEM. Her comments in response to some of the recommendations that resulted from the mini-symposium held in 2007 were:

- ✓ Using its award management system, NSF is now able to track the three institutions (Gallaudet University, the National Technical Institute for the Deaf, and Landmark College) identified by CEOSE during its mini-symposium titled “CEOSE Mini-Symposium on Institutions Serving Persons with Disabilities in STEM”, which was held in 2007. Therefore, NSF will be able to provide the desired information requested in the recommendation.

- ✓ It was noted that there are excellent disability-specific programs at universities, and they should not be overlooked.
- ✓ Awareness is being built among NSF program officers, especially those who manage Centers and EPSCoR, to enhance partnerships to include institutions serving persons with disabilities.
- ✓ NSF Solicitations for scholarships, fellowships, and research internships are being strengthened through the advisement of opportunities for students with disabilities.
- ✓ Many projects that are sponsored by NSF through the Alliances for Students with Disabilities in STEM (awards made under the Research in Disabilities Education program) provide student stipends. Also, the Facilitation Awards for Scientists and Engineers with Disabilities (FASSED) provide supplements for NSF awardees to support participants with disabilities.

Dr. Olsen stated that CEOSE deliberated in a very thoughtful way about the place of Broadening Participation in the Broader Impacts Criterion. Further, she advised that **Dr. Arden L. Bement, Jr.**, NSF Director, would like to present the CEOSE recommendation on the Broader Impacts Criterion at the February 2009 Meeting of the National Science Board.

Prior to the completion of her comments, **Dr. Olsen** advised that the CEOSE request for additional information on Graduate Education Programs was included in a document, which was made available to the Committee earlier in the day. She then proceeded to respond to questions from CEOSE members on the following topics: 1) Recommendations resulting from the CEOSE Mini-Symposium on Native Americans, which was held October 29, 2008, 2) Giving more persons from underrepresented minority groups the opportunity to serve as proposal reviewers, and 3) Proposal types, and 4) Program assessments.

Roundtable Discussion on Lessons Learned: STC Education/Diversity Directors on Broadening the Participation of Native Americans in Science and Engineering

Dr. Theresa A. Maldonado moderated deliberations of a panel of persons (**Drs. Barbara C. Bruno of C-MORE, Diana Dalbotten of NCED, Vicky Lytle of CREsis, and LaRuth C. McAfee of CLIPS**) who serve as key executives of education and diversity at four NSF-sponsored science and technology centers. Lead institutions for these four centers are the University of Hawaii at Manoa, University of Minnesota – Twin Cities, University of Kansas, and Case Western Reserve University. Each panelist described strategies used in working directly or indirectly with Native Americans and some of the lessons learned from the experience. Among the points presented were the following: there is no single strategy that can be used for all Native Americans; stem strategies that work for Native Americans including peer support and mentoring; one type of support that is needed along with the academics is child support; community colleges is where a large number of Native Americans receive their degrees; one needs to go beyond recruiting and retaining students, to focusing on timely graduation; NSF programs that focus on Native Americans should be reviewed and adjusted to assure less duplication and better focus; more Native Americans need to be included among the nsf reviewers, especially when Native American programs are being reviewed; NSF needs to review and, if necessary, refine the foci of its programs in reference to education components; the importance of long-term funding and positive transformations is enormous; the development of positive relationships in the Native American and other communities is critical; building trust in the Native American community is critical too; there are positive results with K-12 Native American education as a result of NSF-sponsored science and technology centers; collaboration of Native American and research institutions in NSF-funded programs; strategies need to be developed and shared on how to effectively reach out to Native Americans when the percentage in your area is very small; institutions need to have a shared vision if they are to work together; strategies are needed to better support Native Americans in STEM; there is a need for more mentors; there is an incredible importance of long-term programs to Native Americans; institutions need to structure programs so that they survive the individual leader's tenure; transitioning good practices is very important; STCs promote minority students having key roles in research; the apprenticeship model, cohort model, and teacher-student pairs

in research settings work well at institutions and Centers; it is the role of everyone to address diversity. **Dr. W. Lance Haworth** provided insights on the STC Program, for which OIA has oversight, and thanked the four panelists who represent four of 17 STCs funded by NSF.

Reports of the CEOSE Ad Hoc Subcommittee Chairs

Dr. William C. McCarthy advised that the CEOSE *Ad Hoc* Subcommittee on Broadening Participation needs more members. Currently, he and **Dr. Muriel Poston** are the only members. A larger membership is needed to enable a broader perspective and greater effectiveness. The membership was increased to include the following persons: **Drs. Richard E. Ladner, William C. McCarthy** (Subcommittee Chair), **Marigold Linton, and Muriel Poston**.

The *Ad Hoc* Subcommittee on Strategic Planning has four members (**Drs. Muriel Poston** (Subcommittee Chair), **Joseph Francisco, Beverly K. Hartline, and Dr. Theresa A. Maldonado**). In addition to the development of the CEOSE Strategic Plan, this subcommittee is to lead the development of the biennial reports to Congress. Therefore, **Drs. Robert Lichter, Marigold Linton, and Samuel L. Myers, Jr.** were added to this subcommittee to provide insights on the preparation of the biennial report to Congress. In making a report on behalf of **Dr. Muriel Poston** on this subcommittee, **Dr. Maldonado** spoke of her presentation to the Mathematical and Physical Sciences Advisory Committee and the focus of CEOSE for the future. She told how CEOSE uses its biennial reports in planning and implementing its path forward. After briefly reviewing the recommendations contained in the biennial report for 2005-2006, **Dr. Maldonado** advised that there is no national strategy for broadening participation. Seemingly, the CEOSE strategy is the closest to a national strategy. She spoke of the use of the word “pipeline” versus “pathway” in reference to paths in the education continuum. She commended the Committee for its concerted efforts to make progress in reference to its mandate on broadening participation. A philosophy that **Dr. Maldonado** would like to adopt for CEOSE is "Failure is not an option." She asked Committee members to think about the answer(s) to the following questions: What are we trying to achieve with broadening participation as a main objective for CEOSE and for NSF, and how do we know when we are successful? In reference to broadening participation in science and technology, **Dr. Maldonado** would like to explore how CEOSE can have a common understanding of what broadening participation is and how this Committee can move forward to effectively address its broadening participation mandate from Congress.

Dr. Walter V. Collier who represents the contracting agency, Beyond The Bottom Line, Inc., advised that strategic planning for CEOSE is a challenge, given that the Committee only meets three times each year. He suggested that CEOSE devote sufficient time (perhaps a full meeting) to the strategic planning process. **Dr. Beverly K. Hartline** advised that what is missing in the process is “catalyzing epiphanies”. The more people that are aware of CEOSE, the better. Working with people to make substantial changes and differences is the way to go. CEOSE must communicate its ideas, recommendations, and philosophy. Another CEOSE member expressed concern that the importance of broadening participation in science and engineering has not been realized by all NSF levels. However, the top NSF management level recognizes the importance of it. Yet another CEOSE member spoke of the criteria used by a Tribal College for student acceptance, the fact that the nation is losing its leadership in science and technology, and the need for us to think in terms of wealth production and how we measure success of one strategy versus another. **Dr. Robert Lichter** spoke of our ability to foster innovation and turn it into wealth. Another member spoke, from a science and engineering point-of-view, of the fact that we have a market within our own boundaries that can help stabilize our economy. We need to do something to remedy the gaps caused between minority and majority students in science and mathematics. The question was raised: how do we incentivize people to prepare for and choose science and engineering careers? A revolutionary approach is needed. **Dr. Maldonado** called to the attention of the Committee that everyone needs to discuss policies, activities, and priorities. All agreed that the CEOSE structure is satisfactory and that there is a great deal of work to be done.

ACTION ITEM: Dr. Margaret E. M. Tolbert was asked to make all of the reports on CEOSE mini-symposia available to the contractor, Beyond The Bottom Line, Inc., that is assisting with the preparation of the 2007-2008 CEOSE Biennial Report to Congress. **ACTION ITEM: Dr. Margaret E. M. Tolbert** was asked to make available to the contractor the gender and race/ethnicity data on NSF advisory committees for 2006 and 2007.

Dr. Harris did not make any additional comments on activities of the CEOSE *Ad Hoc* Subcommittee on Accountability, Evaluation, and Communications; he gave his report at the beginning of this meeting.

Adjournment

The meeting was adjourned by **Dr. Harris** at 4:45 p.m.

Friday, October 31, 2008

Opening Comments by the CEOSE Chair

The meeting was called to order at 8:35 a.m. Following opening remarks, which included a review of the agenda for the day, **Dr. Harris** introduced **Mr. Robert Hughes**, the first speaker of the day. **Mr. Hughes** is manager of the Scholars Program of the American Chemical Society. His presence as a CEOSE presenter was facilitated by **Dr. Robert Lichter**.

Presentation: "The American Chemical Society Scholars Program: Pathways to Success"

After thanking everyone for the opportunity to speak to the Committee, **Mr. Hughes** advised that the American Chemical Society (ACS) Scholars Program was established in 1994. The first awards were made in 1995, the same year that he began his tenure with the program. The core activity of the program is to promote inclusiveness throughout the chemical enterprise through the diversification of the workforce. The effort was, and still is, to address the underrepresentation of minorities in the chemical enterprise; the objective is to encourage and support minority participation in the chemical sciences. The ACS Board initially committed five million dollars from its strategic reserve to award scholarships for five years. The administrative cost was covered separately. In 1998, the program was extended to 2005 with an additional \$1.5 million. Then in 2002, it was extended to 2008, and later to 2010. Most recently, it was extended to 2013. This program operates on continuing appropriations. The program award is \$2,500 for the freshman year, up to \$3,000 for the sophomore year and \$5,000 per academic year for juniors and seniors. A minimum award of \$1,000 is provided, without regard to need. A fifth year can be sponsored for those students in five-year programs like chemical engineering. The Scholars program averages 350 students per academic year. The average GPA is 3.0 out of 4.0. Roughly 1,990 students have received awards from this program. Scholars' demographics are 57% female, 53% male, 54% African American, 40% Hispanic/Latino American, and 6% American Indian.

The percentages for majors are: 13% in biochemistry, 36% in chemistry, 39% in chemical engineering, 1% in chemical technology, and dual majors are 11%. Eighty percent of the awardees complete their Bachelor's Degrees in a chemical science with a GPA of 3.0 or better. Ninety percent of these students will actually graduate, but they may not graduate as scholars if their grade point averages drop too low. Mentoring, networking opportunities, and exposure are important parts of the program. External support of the program is growing. **Mr. Hughes** included in his presentation a description of the application process. Also, he advised that Scholars are tracked, and it is known that some are completing graduate degrees, while others are working in chemical science fields. Following the presentation on the ACS Scholars Program, **Mr. Hughes** briefly described Project SEED. Then he responded to questions.

Roundtable Discussion: Broadening Participation Initiatives with a Focus on Programs and Activities of the Office of International Science and Engineering

In his opening remarks about the roundtable discussion, **Dr. Harris** advised that this session is an example of open communications between CEOSE and NSF. It is an outcome of earlier discussions with **Drs. Arden L. Bement, Jr.** and **Kathie L. Olsen**, and it has their full support. **Dr. Harris** thanked **Drs. W. Lance Haworth** and **Margaret E. M. Tolbert** who facilitated the development of this and other useful dialogue among NSF senior managers and CEOSE members. In these interactions, the focus is on broadening participation in science and engineering, and CEOSE looks for avenues by which to assist NSF in its efforts in this arena. With CEOSE assisting NSF and vice versa, the entire enterprise will advance in terms of science and engineering for everyone, relative to broadening participation. **Dr. Harris** advised the senior managers that they are in the midst of very active members of CEOSE and that they are warmly welcome. Further, he stated that the interactions and opportunity to work with together are welcome. He stated that additional roundtable discussions and other types of interactions of mutual interest are anticipated as the challenges and opportunities are delineated more clearly.

Dr. W. Lance Haworth, Director of the NSF Office of Integrative Activities, who served as moderator of the roundtable session, advised that the opportunity for the involvement of NSF senior level managers is welcome. **Dr. Haworth** spoke of the roundtable discussion as a first, realizing that several senior managers had given individual presentations during previous CEOSE meetings. The format of the session, as indicated by **Dr. Haworth**, was initially a presentation by **Dr. Larry H. Weber**, followed by questions focused on his presentation. Then the session was opened for general discussion with everyone involved. The primary focus was on broadening participation in science and engineering.

Dr. Haworth introduced **Dr. Weber**, the primary speaker for the roundtable session, who is an oceanographer who brings a wealth of experience and international efforts to his current position as acting director of the NSF office of international science and engineering. Also, he headed NSF's Tokyo office in the early 90s and again for a brief period a couple years ago.

Dr. Weber who is the Acting Director of the Office of International Science and Engineering made a presentation titled "Broadening Participation Initiatives with a Focus on Programs and Activities of the Office of International Science and Engineering". Beginning his presentation by highlighting some clichés (e.g., science is global; the world is flat; and we must rise above the gathering storm), he stated that NSF must support the development of a globally engaged U.S. STEM workforce that can compete and fully participate based on enhanced understanding and sensitivity to international issues. He gave two statements of the International Office's vision for broadening participation. Although the International Office administers a small set of programs, it is more importantly, the focal point, a coordinator for international activities across and within the entire Foundation. Therefore, in the OISE draft strategic plan, there is a statement: Develop mechanisms to engage a more diverse set of both institutions and individuals in NSF's science and engineering activities, and in the OISE draft broadening participation plan, the engagement of underrepresented individuals and institutions across the full spectrum in international activities is promoted.

In presenting a snapshot of OISE activities, **Dr. Weber** stated that OISE is doing reasonably well in terms of the percentage of grants made to women and underrepresented minorities, 40% made in 2005-2007. In the International Research Fellowship Program, which sponsors about 40 U.S. Post-doctoral Fellows abroad each year for two-year experiences, there is gender balance. OISE has the same figure for minority reviewers as the NSF-wide percentages of 36 to 37. Two challenges on which OISE officials will focus in the future in terms of broadening participation are the PIRE Program and enabling participation to a greater extent of underrepresented program directors, graduate and undergraduate institutions, community colleges, and the broader K-12 enterprise. **ACTION ITEM: Dr. Weber** asked for CEOSE insights on how best to address the challenge of enabling participation to a greater extent of underrepresented

program directors, graduate and undergraduate institutions, community colleges, and the broader K-12 enterprise in OISE programs and activities.

In a variety of OISE program announcements, explicit language to encourage broadening participation is included. OISE supports a program of planning visits and workshops to enable the development of international collaborations. Another program, International Research Experience for Students is similar to the Foundation-wide REU Program. However, the OISE program can support both undergraduate and graduate students. In terms of including more minority serving institutions, as well as some for persons with disabilities, program applications have been adjusted to accommodate more inclusiveness. **Dr. Weber** also gave examples of international activities that are supported across NSF. For example, he complimented the Global Engineering Education program, which is a consortium of U.S. university partners with universities around the world to provide education and research experiences for engineers. He continued with additional information about other programs and outreach efforts of OISE, providing data, program refinement, and his assessments of the impact.

During the question, answer, and comment period, the other senior managers (**Dr. Margaret Cavanaugh**, Deputy Director, Directorate for Geosciences; **Dr. Tony F. Chan**, Assistant Director, Directorate for Mathematical and Physical Sciences; **Dr. James P. Collins**, Assistant Director, Directorate for Biological Sciences; **Dr. Simon N. Stephenson**, Director of Arctic Sciences Division, Office of Polar Programs; **Dr. David W. Lightfoot**, Assistant Director, Directorate for Social, Behavioral, and Economic Sciences; **Dr. Cora Marrett**, Assistant Director, Directorate for Education and Human Resources; **Dr. Michael M. Reischman**, Acting Assistant Director, Directorate for Engineering; **Dr. José Muñoz**, Deputy Director, Office of Cyberinfrastructure, **Dr. Jeannette Wing**, Assistant Director, Directorate for Computer and Information Science and Engineering) participated, along with CEOSE members. They spoke of additional programs and activities across NSF; memoranda of understanding; studies on sexism, racism, anti-American sentiments encountered by international program participants; best practices manual; involvement with other Federal agencies and scientific organizations; program officer interactions; the importance of holding discussions with persons, especially those with disabilities, about barriers to their productivity during their tenures abroad; interactions with indigenous people south of the U.S., Canada, and Alaska; International Polar Year; Saving and documenting languages of indigenous people worldwide; consideration of a requirement of a broadening participation plan from institutions who apply to NSF and a clear connection of the proposed project to that plan; broadening participation plans of NSF directorates and major offices; the science of broadening participation. The conclusion is that a great deal of work has been completed, but there is more to be done in terms of broadening participation in the science and engineering enterprise.

Reports by CEOSE Liaisons to NSF Advisory Committees

Oral liaison reports were given by **Dr. Richard E. Ladner**—CISE Advisory Committee (AC), **Dr. Wesley L. Harris**—ACCI and ENG AC, **Dr. Samuel L. Myers, Jr.**—SBE AC, and **Dr. Robert L. Lichter**—ACGPA. Also, **Ms. Sandra Begay-Campbell**, who did not attend this meeting, submitted a written report. **ACTION ITEM:** CEOSE Liaisons to NSF Advisory Committees are advised to submit their one to two page reports in writing prior to each CEOSE meeting.

Presentation by Dr. Theresa A. Maldonado

Dr. Maldonado reminded members of the charge to each CEOSE subcommittee. Copies were distributed to members. She then discussed possible topics for 2009; examples included Women of Color, which was recommended by **Dr. Maria (Mia) Ong**; Impact of Research Centers on Career Development; and Gender Equity. Additional ideas are welcome.

Other CEOSE Business

- **ACTION COMPLETED:** The topic of increasing the term of the CEOSE Chair was introduced by **Dr. Robert L. Lichter**. It was agreed by CEOSE members that the term of the CEOSE Chair is to be **one year with an option of possible renewal up to three years.**
- **ACTION ITEM:** CEOSE members who are working on the biennial report are to review and respond to deliverables submitted by the contractor through **Dr. Tolbert** and provide insights on the contents and format of the report.
- **ACTION ITEM:** CEOSE members are to review the minutes of this meeting and provide comments, if any, to **Dr. Tolbert**.
- **AGREED:** CEOSE members agreed to substitute for other CEOSE members in NSF advisory committee meetings when the designated liaison cannot attend.
- **ACTION ITEMS:** To a future CEOSE meeting, invite the Assistant Director of Engineering to provide insights on engineering programs that support broadening participation. Also, invite the SBE Assistant Director to discuss programs of the SBE Directorate.
- **Dr. W. Lance Haworth** suggested that a password protected website be set up for CEOSE use. This suggestion was accepted.
- During the lunch period, part of a video DVD (from a DragonFly TV Broadcast on Renewable Energy Scientist, April 25, 2007) provided by **Ms. Sandra Begay-Campbell** was shown.
- The book chapter written by **Drs. Beverly K. Hartline** and **Muriel Poston** has been accepted for publication by NASULGC.

Adjournment

The meeting was adjourned at 2:20 p.m.

CERTIFICATION OF THE ACCURACY OF THE CEOSE MEETING MINUTES

Dr. Wesley L. Harris, Chair of the Committee on Equal Opportunities in Science and Engineering, approved the meeting minutes on December 16, 2008, by e-mail message to Dr. Margaret E.M. Tolbert, CEOSE Executive Secretary and NSF Executive Liaison to CEOSE.