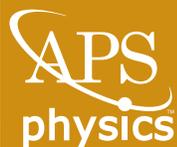




GENDER EQUITY

CONVERSATIONS

STRENGTHENING THE PHYSICS ENTERPRISE
IN UNIVERSITIES AND NATIONAL LABORATORIES



GENDER EQUITY

CONVERSATIONS



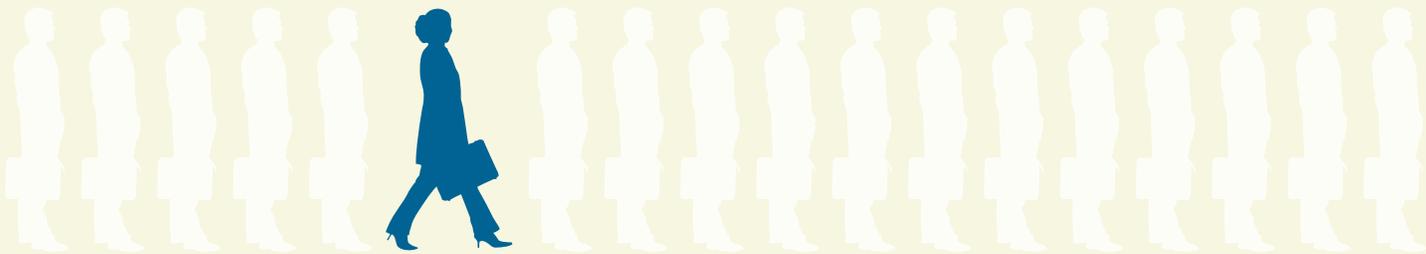
EXECUTIVE SUMMARY

For the past forty years, the American Physical Society's (APS) Committee on the Status of Women in Physics (CSWP) has engaged in a series of programs aimed at raising the number of women in physics, in academic departments and national laboratories. While the numbers of women in physics in these positions have risen, physics still lags far behind other science, technology, engineering, and mathematics (STEM) disciplines in its proportions of women to men, and its overall climate for women and underrepresented minorities. In the past forty years, the climate for women has improved immensely, but there are still problems. Conversations on Gender Equity, CSWP's most recent program developed as follow-up from the CSWP 2007 Gender Equity Conference, has been at the forefront of helping university departments and national laboratories bring these problems to light and helping participants formulate working strategies to improve the climate for women.

APS recently reviewed the program in order to gauge its effectiveness, consider the program's future, and develop a set of "Best Practices" for future participants including program administration, facilitators (site visitors), faculty, and department chairs. APS recommends that the program should continue with a number of suggested changes. These suggestions included obtaining co-funding by departments, conducting departmental surveys before the program, changing scheduling of the final report to give visitors more time to reflect, increasing the pool of site visitors, and expanding the reach and visibility of the program to other STEM disciplines through collaboration, video, and STEM conference presentations. The core of these recommendations is included in the following Best Practices:

FOR PROGRAM ADMINISTRATION

- 1. Expand the kinds of groups the program serves**—Offer the program to larger undergraduate "feeder" schools, large collaborations, and APS Divisions and Topical Groups, in addition to research universities and national laboratories.
- 2. Clarify the differences between the Climate and Conversation Programs**—Carefully explain the differences between the Conversations on Gender Equity visits and the traditional CSWP evaluative site visits so that departments can choose the program they feel will be most beneficial.
- 3. Improve pre-visit preparation**—Begin offering anonymous electronic surveys and pre-visit information gathering to make sure as many relevant issues as possible are brought to the table during the visit. Solicit information from the department chair or unit leader.
- 4. Offer timely feedback and resources**—Change the timing on the Conversation Visit action plan writing to allow for more in-depth reflection; compile a Best Practices document for department leadership and other administrators.
- 5. Encourage more cross-department discussion**—Many other departments have already implemented successful strategies that can be used across departments. Information-sharing and discussions increase collegiality and the cross-fertilization of ideas.
- 6. Track program results**—Develop a schedule for collecting and disseminating information on the results of the program: contact site facilitators about what was learned from the visit, its positive effects, remaining challenges, and unintended consequences or negative effect. Summarize and distribute results along with a list of chairs to contact for advice, then contact program administrators annually for three years to track changes and also invite them to meet after two years to exchange ideas and discuss progress.
- 7. Develop a follow-up survey**—As part of tracking the program's results, the program administration should define why this information is valuable.



FOR PROGRAM SITE VISITORS

1. **Involve administration from the beginning to validate the visit**—Visits are more successful and have more participants if the chair and other administrators are invested in the program process.
2. **Communicate clearly with the chair prior to the visit**—Discuss the formation of the host committee and explain the visit format and process clearly.
3. **Encourage student participation in the program and elsewhere**—Undergraduate and graduate students are vital members of the department and crucial to the future of physics.
4. **Provide notes to chair with confidential issues**—If confidential issues arise, inform appropriate individuals (probably the chair) in a fashion that will not compromise confidentiality.
5. **Follow up after the visit**—Make it clear to participants that there will be follow-up from the program administrators and facilitators and describe what it will entail.

FOR INSTITUTIONS AND CHAIRS

Pre-Visit

1. **Make the commitment of departmental leadership to the program clear from the beginning**—The obvious involvement of administrators, especially the chair, validates the visit program and encourages everyone in the department to participate.
2. **Emphasize that the visit aims to assist and improve the department**—One of the biggest stumbling blocks to improving the climate for women is fear of criticism and resentment at being told what to do.
3. **Make the format of the visit clear**—Knowing what to expect will encourage broader participation by all the faculty, post-docs, adjuncts, and students – both male and female.

4. **Build an effective host committee**—Make sure it represents a broad cross-section of the department, especially students and others who may feel marginalized in the department.
5. **Suggest focus areas for the visit**—Work with program facilitators and the host committee to address existing problem areas.

Post-Visit

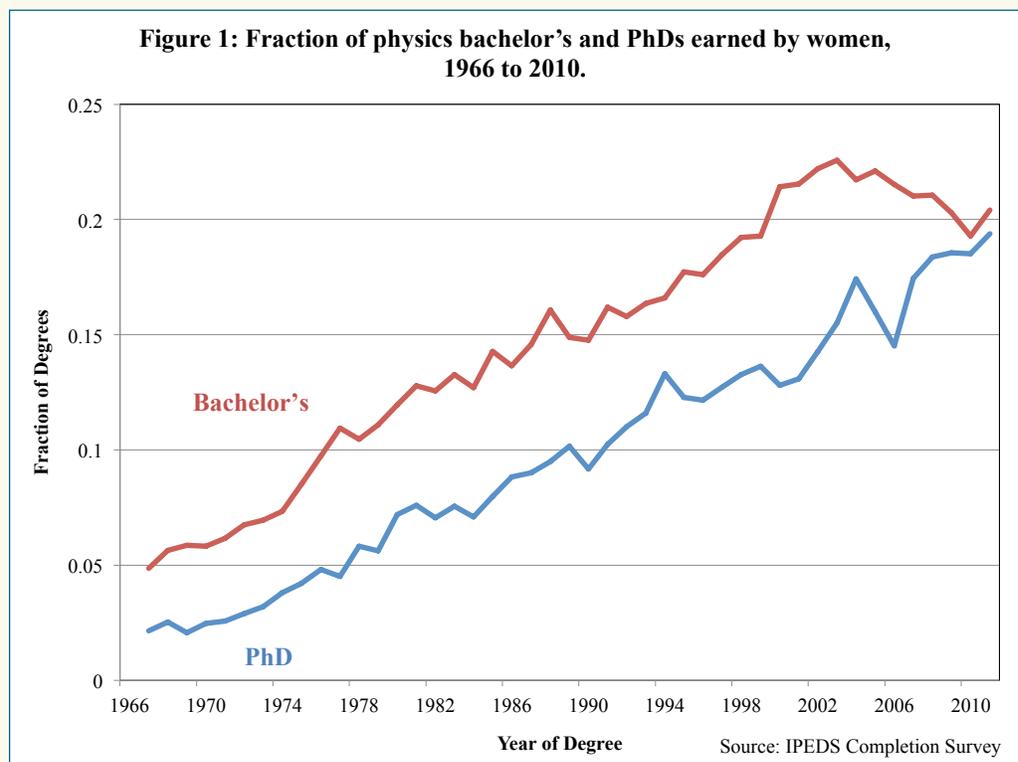
6. **Produce and distribute a Chair's Summary**—The summary should be distributed to the entire department, including participants and non-participants, to emphasize that the program intends to benefit and involve everyone.
7. **Make the case beyond overt discrimination**—While overt discrimination is easy to see, it is harder to eradicate subtle, unconscious, and culturally ingrained biases that might unintentionally tint actions.
8. **Communicate best practices for on-going conversations**—Encourage staff and faculty to keep issues raised by the visit in mind and keep the conversation going when appropriate. Support those who bring up the subject or point out issues.
9. **Implement an annual meeting of mentors**—The department should implement mentoring if this is not part of the department's policy already. Mentors should regularly meet with the administration to keep them informed on issues as they arise.
10. **Involve graduate students with recruiting committees**—Graduate students provide relevant, insightful perspectives to recruitment and hiring committees.
11. **Follow up with the women in the department**—Chairs should meet with women in the department at least annually to assess the effectiveness of improvements and initiatives, and to ascertain if ongoing issues have not been resolved.

GENDER EQUITY

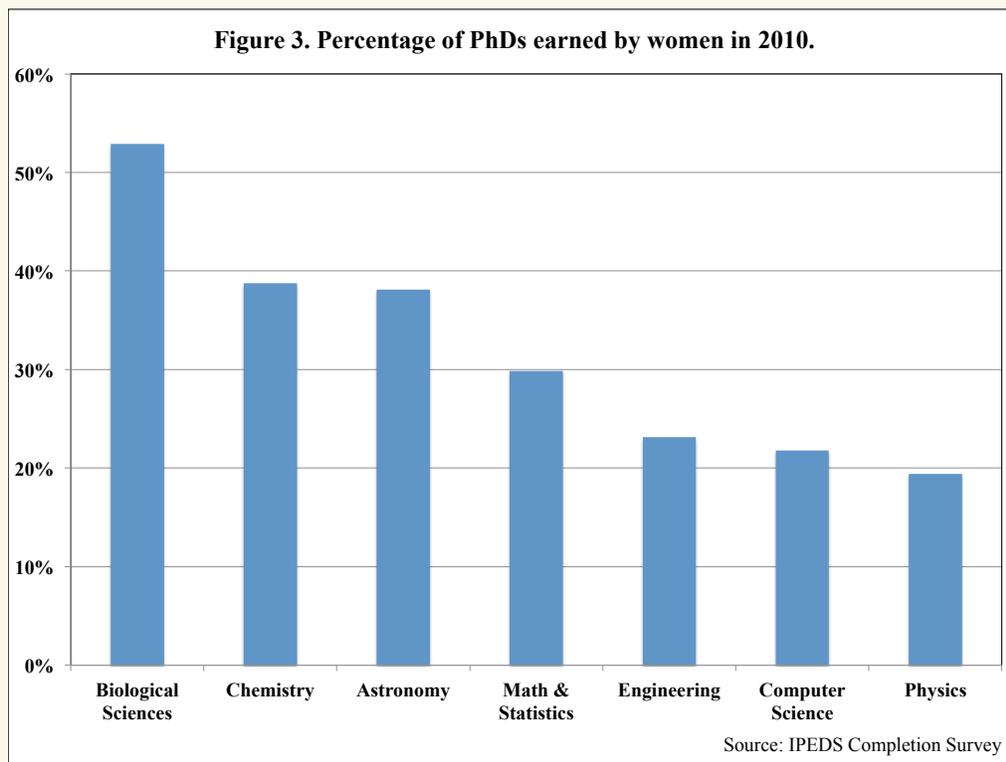
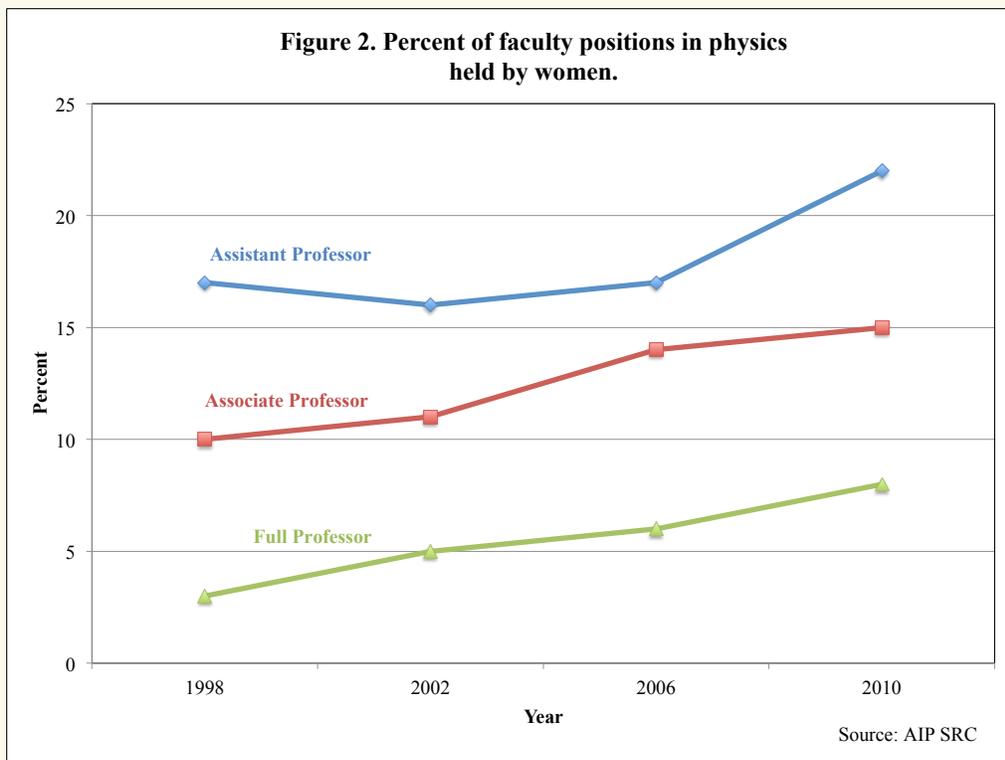
CONVERSATIONS

INTRODUCTION: PROGRAM DEVELOPMENT

In 1972, the year of its formation, the Committee of the Status of Women in Physics (CSWP) of the American Physical Society (APS) began looking at ways of increasing the proportion of women in physics departments and national laboratories in the United States. Despite the growing representation of women in science, technology, engineering, and mathematics (STEM), physics as a field has lagged in equitable representation as far as both gender and minorities are concerned. The field remains overwhelmingly male and white, especially at its highest levels, while other disciplines such as biology and chemistry have reached or are approaching parity in gender representation. Figure 1 illustrates the steady increase in representation of women physicists over the last 44 years, and Figure 2 demonstrates that women, while generally increasing their representation, still fall short of equal representation. In comparison, Figure 3 offers a breakdown of the percentage of doctorates earned by women in 2010 by discipline. Although the percentage of physics doctorates awarded to women climbed to an all time high of 18 percent, the percentage of women physics faculty in senior positions is still very low. According to the American Institute of Physics (AIP) Statistical Research Center¹, these numbers reflect the increasing numbers of women in the field, but lag current data owing to the time when they were hired. There is clearly still a significant underrepresentation of women in physics but the numbers indicate this will improve as current PhDs advance through the ranks. Clearly, one of the most significant challenges is to increase the representation at the undergraduate level—the seed for all subsequent levels.



1 <http://www.aip.org/statistics/trends/reports/women05.pdf>



PROGRAM STRUCTURE

In 2007, inspired by a similar 2006 workshop held in the chemistry community, APS brought together the chairs of 50 major research-oriented academic physics departments, and approximately 15 physics-related managers of major national laboratories who were influential as gatekeepers of faculty/personnel, along with representatives of funding agencies, in a conference entitled “Gender Equity: Strengthening the Physics Enterprise in Universities and National Laboratories.” The program was funded by a National Science Foundation (NSF) grant to APS/CSWP and by the Department of Energy (DOE), and invited top social scientists to discuss bias issues and remedies. The conference aimed to look at data on the representation of women in physics, learn possible reasons for the trends, and formulate ideas for approaching the underrepresentation problem. The overall goal of the conference was to facilitate doubling the number of women in physics over the next fifteen years by giving departments tools to aid in recruiting students, increase faculty hiring, and retain both by building a respectful environment.

The workshop resulted in a number of action items for physics departments, national laboratories, and funding agencies in the areas of recruitment, climate, and retention. Funding agencies were called upon to encourage diverse communities, improve the grant process, and address issues that will help women advance.² As follow-up to the conference, the APS CSWP initiated targeted visits to a number of the participating physics departments to carry on a “Conversation on Gender Equity” in order to encourage local action on the issues that limit women’s participation in physics.

PROGRAM STRUCTURE

Conversation Visits are initiated by department chairs and are intended to foster dialogue among members of a department, to draw out what challenges women and others from groups underrepresented in physics face, and to brainstorm solutions within the local context. Additionally, the visiting discussion leaders (“facilitators”) learn what works best for physicists in that setting, and carry that information forward into future site visits and physics programs. The visiting team for Conversation Visits is selected from members of the original gender equity workshop steering committee, CSWP, and a group of working physicists and social scientists who are also fully engaged in STEM diversity issues. The discussion leaders are volunteers, and to date, all travel costs have been covered by the NSF grant for the project so that costs to the department are minimal. Discussion leaders meet with students, faculty, staff, the department chair or lab director

and whomever she or he designates, and other interested parties. Conversation Visits begin with the team leader contacting the administration, explaining the program, and asking them to form a host committee. The host committee should be composed of the department chair, an advocate for making changes (someone who will help to keep the momentum going after the visit, i.e., keep these issues on the departmental radar) and a person who represents the prevailing attitudes of the department (someone who might bring the counter voice to the discussion.) The visit has three main parts: identifying challenges, brainstorming solutions, and finally, developing an action plan.

First, the challenges are unearthed in a brainstorming session with what should be a cross-section of faculty, staff and students to examine the institution’s culture and how that culture affects its climate for gender equity and the expansion of diversity. A group of about 20 people works well for this exercise. Participants are asked to consider a standard question: “What are the challenges to thriving that are faced by women in (a) the department, (b) the university, and (c) the broader community?” For this “three-wall exercise” participants list problems that need to be addressed on three of the room’s walls. Then the group breaks into three parts to summarize and form a narrative for each wall. Each group then presents a report to the assembled group.

Following the brainstorming session, the joint committee begins separate meetings with members of different groups in the department: staff, undergraduate students, graduate students/post-docs, and faculty. In these meetings, participants propose solutions to the problems found in the first session. They write their ideas on sticky notes and post them on each of the three walls, an exercise done in silence to encourage anonymity. A facilitator then helps participants identify themes and cluster the ideas for solutions under each theme.

The next part of the visit entails a roundtable discussion among faculty and other interested participants to prioritize the possible solutions and develop an action plan. Finally, the joint committee meets to discuss the findings and action plans, and to summarize the day’s discussion.

EXAMPLES OF PROGRAM FINDINGS

The overall aim of the Conversations on Gender Equity visit is to help participants recognize and change impediments to a friendly atmosphere, and foster not just civility but collegiality. The process is designed to allow discovery of issues particular to the department and to generate solutions that best address them. An example of a positive outcome of the program would involve promoting work/life balance

² This workshop is discussed in more depth in the APS report on the conference, <http://www.aps.org/programs/women/workshops/gender-equity/upload/genderequity.pdf>.

PROGRAM FINDINGS

for all, whether through policy (stopping the tenure clock for faculty who start families, encouraging both men and women to take paternity or maternity leave), or something as simple as scheduling courses and meetings to accommodate child care needs and taking personal safety concerns into consideration.

Many of the Conversations on Gender Equity visits bring out the presence of similar general problems: lack of women role models and mentors; lack of policies that support a balance of work and life; lack of respect or even active harassment of female faculty members or students; unconscious bias in hiring or promoting women faculty or admitting or supporting women students; policies written more for staff than faculty; ineffective recruitment programs; and the need for confidentiality in handling problems. As discussed in the original gender equity report, there are specific steps departments and administration can take to rectify these general problems that often go a long way toward making the climate friendlier for women.

The Conversation Visits also tend to bring out very specific problems the department may be unaware of, some of which may have as much to do with an atmosphere of civility as with more gender-specific problems. For instance, in one Conversation Visit report, the facilitators observed that some in the department felt that “mentoring, as a service, does not seem to be valued.” One student at another university noted that she had to be very persistent and aggressively pursue faculty to obtain a research position. At another university, women undergraduates expressed that they and many of their minority peers did not feel they belonged, or that others believed they were only there because they were women, not because they were capable students. One university administration was unwilling to deal with the disproportion of women faculty in physics and astronomy because 60 percent of university faculty was already female. As a result, there was no support for dual career hires or expanded recruitment of women in STEM fields. None of these attitudes are unusual, nor confined to physics. As a recent *New York Times* article about women faculty at MIT pointed out, “with the emphasis on eliminating bias, women now say the assumption when they win important prizes or positions is that they did so because of their gender. Professors say that female undergraduates ask them how to answer male classmates who tell them they got into M.I.T. only because of affirmative action.”³

Mentoring

A commitment to mentoring both new faculty and students makes for a more cohesive and collegial department. During the program, facilitators found a wide range of attitudes toward mentoring often linked to whether the tenure emphasis was on research or teaching (either undergraduate or graduate). Some schools were exemplary; some seemed to value their students very little, if at all. This attitude also influences the kind of climate a department has and their success in recruiting and retaining women faculty. Facilitators also found that even after more than twenty years of drawing attention to the problem, there is still a significant number of faculty who think there is no climate problem, do not recognize the bias against women entering physics at all, or believe that rectifying it is not worth their time and effort. This attitude can have a significant effect on recruitment and retention of both faculty and students. Even if the problem has been addressed in an earlier climate visit, a conversation visit often serves to bring out new or recurring problems.

Safety and Scheduling

Several specific issues were brought up in multiple visits, and it is clear that they can be intertwined with other problems. For example, safety matters may include course scheduling, transportation around campus as well as to and from it, and facility safety. Student lounges may feel unsafe at night and possibly unwelcoming to the female undergraduates. Lounges may be poorly located, badly designed for group work, or simply unattractive and uninviting—a message that undervalues students. There may be a lack of safe transportation to and from the lounge, class meetings, or laboratories late at night. Likewise, when classes in the same department are scheduled in multiple buildings distributed randomly across campus rather than localized, it’s more difficult for both faculty and students to think of themselves as a cohesive group and to get to know one another. Night classes present additional problems for safe travel as well as family responsibilities. A department can seem more welcoming and concerned about the welfare of its members by increasing its communication and transparency. This might be accomplished by having easy and confidential access to policy statements about the tenure process, graduate school admissions, post-doc hiring and grant applications, conference attendance, presentation information and publishing opportunities and requirements, and a guarantee of confidentiality when reporting issues. These actions, in turn, encourage job satisfaction, collegiality, and loyalty—not to mention enthusiasm for the subject and the people involved in it.

3 Kate Zernike, “Gains, and Drawbacks, for Female Professors,” *New York Times*, March 21, 2011. <http://www.nytimes.com/2011/03/21/us/21mit.html>

PROGRAM ASSESSMENT

ASSESSMENT OF THE PROGRAM

The Conversations on Gender Equity visits create a space for all members of the department to focus their mental energy on identifying challenges and brainstorming solutions to impediments to success for members of their department. This often allows them both a global view and a view of the day-to-day interactions and frictions of a department from within the ranks, without fear of backlash or reprisals. In assessing how well the program works, APS solicited comments from both facilitators and participants from individual departments and laboratories.

Evaluation Criteria

The first question, of course, is how to assess the program. Is there a baseline qualitative or quantitative measurement? Can engagement with a problem be measured by metrics? Can climate ever be assessed through anything but anecdotal evidence? One of the difficulties in a program of this type is quantifying attitudes, which are at the base of the climate question. If the overall goal is to increase the number of women in physics, then the program goal of the Conversations on Gender Equity visits is to improve the climate for women and minorities as a way of increasing their numbers in the physics community.

Problems addressed in the previous section are both difficult to unearth and quantify, and just as difficult to fix. As one program committee member said, "People who didn't get it still don't get it," and illustrated this assertion by relating the experience of hearing a faculty member insist in a meeting that married couples on the faculty should only get one vote. Thus the need to continue the program is self-evident: the prevailing culture at many departments neither values nor supports women members. The fact that department chairs still ask CSWP for help with gender issues indicates that CSWP should continue offering the Conversations on Gender Equity visits, the regular Climate Site Visit Program, or some combination of the best of both. A look at the Conversations on Gender Equity program's strengths and weaknesses can perhaps illuminate the way forward.

What Works, What Needs Work

As Committee member Marty Baylor remarked, "One of the benefits of the Gender Equity program is the feeling we get from the host institution that we on the visiting committee are sort of impartial facilitators." Facilitators were generally viewed as neither passing judgment nor telling departments what to do. Instead, they elicit suggestions from the participants and encourage them to think for themselves. In addition, silent brainstorming during the three-wall exercise

allows for confidentiality and facilitates the discovery of issues that might not otherwise come up. By focusing attention on women's issues, the program also brings to light problems of other minority groups, including the Lesbian/Gay/Bisexual/Transgender (LGBT) community.

The make-up of the host committee can be either a strength or a weakness, depending on members' level of investment in making the conversations work, how representative they are of the department's diversity, and awareness of any problems that need to be addressed. With any program, there is what one CSWP member called the "natural decay constant": enthusiasm while you're engaged in the program wears off after time without the support of the administration, especially the chair. A host committee that is invested in benefitting from the program takes charge of urging faculty and staff to participate and following up and implementing the solutions developed during the program. A host committee that is just going through the motions is obviously going to have fewer long-term positive results and may not have the participation of the department members who really should be involved. Likewise, there is often low faculty attendance if the chair isn't proactive in encouraging attendance and forming an effective host committee. There may be mixed support at state universities where policy is controlled by outside bodies such as the state legislature.

Earlier in this report, we discussed how conditions for women have changed over the course of the past forty years. Feedback from actual Conversations on Gender Equity visits support the assertion that this program plays a role in continued improvement. Notre Dame provides an excellent example. During a 2009 Conversation Visit to Notre Dame, the joint committee of hosts and facilitators "had strong concerns around family/parental support and dual career options.... The facilitators also found that policies needed to be more clearly presented."⁴ Kathie E. Newman, Professor and Director of Graduate Studies in the Physics Department, reports that, "A consequence of the Gender Equity in Physics Program was the creation in January 2010 by the Graduate School of a Task Force to examine how to make the University of Notre Dame be more family-friendly...A significant result of this task force was the creation of a Childbirth and Adoption Accommodation Policy for graduate students (a first for a Catholic graduate program)."⁵ The entire university community can benefit when Conversation Visits are taken seriously.

If the Conversation Visits are going to continue to be helpful, the program needs to have a true buy-in from the administration first and foremost. One facilitator remarked that his visit "would have been a more impactful day if the chair had arranged the meetings." In this case, the formation of the host committee was delegated to a faculty member

4 Gender Equity Conversations Visit: Notre Dame, Sept. 11, 2009.

5 Email to Catherine Fiore, April 29, 2011.

who did not appear to have the backing of more research-oriented faculty, which hampered the facilitators' ability to reach everyone in the department. This is not a condition that the program can change, but department heads should be advised about this concern and take the lead in building the host committee and participating in the program. All individuals in the department can make a difference in the climate by speaking out against bias, mentoring women, working to change detrimental policies, or by simply being supportive and attentive, and valuing the contributions of all student, staff, and faculty colleagues.

Currently, the end of the visit is reserved for preparing a summary and an action plan for the department. The lack of down-time between the end of the interactions and the report production make it difficult to produce a concise picture of the best next steps for the department. Going forward, a more relaxed schedule where facilitators and host committee members have time to reflect on the discussions of the day prior to writing the action plan might be advisable. Additionally, a structured follow-up after the program would be useful in terms of gauging the long-term success of the Conversation Visits.

Open Challenges

One question to consider is whether or not the title "Conversations on Gender Equity" is appropriate, given that this program tends to highlight the difficulties of not just women in physics, but all minorities, whether racial, ethnic, or sexual orientation/identity. Although it has been standard practice to say that the conversation should be about women and others who are traditionally underrepresented in physics, this may not be as clear as it could be.

The saying that "a rising tide lifts all boats" may apply in this case: women are the most numerous of the minorities and it has been shown that improving conditions for women improves conditions for everyone. As Howard Georgi points out, "If we can't solve the problem of women in science... we'll have no real chance with racial minorities."⁶ Strategies and solutions applied to making the climate in physics departments and laboratories more welcoming for women also make it more welcoming for other minorities—and improve the lives of everyone. Changing the name might also encourage more men to become involved in the program since this remains an issue. However, in considering this larger role of inclusiveness, care should be taken to not lump all issues together, as various groups feel pressure from decidedly different issues.

One visitor pointed out that without an initial survey, some issues remain hidden or are mentioned to facilitators outside of the sessions, presumably for reasons of confidentiality or fear of reprisal. This dovetails with a remark another visitor made regarding the fact that civility issues (which may have little or nothing to do with gender issues) between faculty and staff in a department spill over onto students and make the recruitment of undergraduates into graduate programs more difficult. As recently as 2003, Harvard Professor of Physics Melissa Franklin explained that "the competitive atmosphere fostered in science departments by their mostly male faculty members exacerbates [the] lack of confidence in women"—both women's confidence in themselves and others' confidence in women.⁷ In this regard, perhaps CSWP should consider how or if the program can help promote what one visitor called the "Best Practices of being a human being." Since one of the concerns of the program is conflict resolution, a greater emphasis on that aspect might be appropriate.

Other concerns that were raised included the support by departments for the creation of women's groups, and encouraging institutions to establish a policy of providing childcare for tenure-track professors, post-docs, and graduate students to allow them to attend conferences. Physics departments and national laboratories, with the support of funding agencies, need to continue their commitment to encouraging women's participation in programs by keeping in mind that primary childcare still falls on women at a time in life when their careers require long research hours. The focus of this issue has shifted from access to grants to arrangements for childcare to make travel and research offered by those grants possible. At this point, making academic and research environments respectful of all participants involves making the climate more supportive of anyone who would like to have both a career and a family. Taking the Gender Equity Program seriously can have positive effects that extend from the department to the institution as a whole.

Other improvements to the program itself included creating a resource list for administrators and standardizing the format of the final action report. The question of when that report should be generated—at the end of the visit, the next morning, or approximately a month later—also needs consideration.

Peripheral Issues

Not only do issues experienced by other minorities tend to arise in the Conversations on Gender Equity visits, but a

6 Howard Georgi, "Women and the Future of Physics." Fermilab Colloquium, http://vmsstreamer1.fnal.gov/VMS_Site_03/Lectures/Colloquium/041020Georgi/vf001.htm

7 Anne K. Kofol, "Women in the sciences face obstacles so subtle they're sometimes hard to recognize," *Harvard Crimson* June 5, 2003. <http://www.thecrimson.com/article/2003/6/5/see-no-evil-professor-of-physics/>

BEST PRACTICES

number of issues concerning peripheral members of the department or laboratory communities were highlighted as well. The fact that few post-docs participate in the visits points to what is often their isolation from the larger academic or laboratory community. This is exacerbated by a lack of “central management” of post-docs at most institutions. This can be resolved in part by adding post-docs to department mailing lists, bringing them together as a group on occasion, and inviting them to department meetings and functions.

Adjunct instructors are in a similar situation, and because as much as 45 percent of introductory classes may be taught by adjunct faculty in some institutions, they play a crucial role in recruiting undergraduate students to the major. Again, including them on department mailing lists and encouraging them to attend department meetings and functions can alleviate the sense of isolation and give adjunct faculty incentives and tools to recruit students. It can also help make them aware of departmental concerns and policies, and improve the atmosphere in the department for everyone. Above all, it may make them more eager to invest in the department if the department invests in them.

Last but not least, graduate students are also often left out of the department’s loop, though they too can play a major role in recruiting new students. Finding regular opportunities to listen to concerns of graduate students, engage them in departmental activities, and provide them with mentoring on careers, speaking skills, writing, and networking prepares them for their lives following graduate school, and builds a stronger sense of community.

BEST PRACTICES

There was a general consensus that the Conversations on Gender Equity Program and its visits should continue in some form in the future. After considering the reports from participating institutions and discussion of the issues outlined above, CSWP has formulated the following Best Practices for the overall program, for its administrators and facilitators, and for the institutions and department chairs implementing the program.

For the Program Administration

1. **Expand the kinds of groups the program serves**—Offer the program to larger undergraduate “feeder” schools, large collaborations, and APS Divisions and Topical Groups, in addition to research universities and national laboratories. This will provide a wider opportunity for both problems and solutions to surface. Sharing experiences from diverse backgrounds and working conditions will benefit everyone.
2. **Clarify the differences between the Climate and Conversation Programs**—The Conversations on Gender Equity visits are different from the traditional CSWP evaluative site visits. This difference should be explained carefully and the department should choose which one they feel will be most beneficial.
3. **Improve pre-visit preparation**—Begin offering anonymous electronic surveys and pre-visit information gathering to make sure as many relevant issues as possible are brought to the table during the visit. Solicit information from the department chair on departmental structure and composition, including his/her perceptions of climate and problems. This may include developing a questionnaire exclusively for the chair.
4. **Offer timely feedback and resources**—This might include changing the timing on the Conversation Visit action plan writing to allow for more in-depth reflection, as well as developing a format for it; compiling a Best Practices document to distribute to department chairs and other administrators; and including “nuggets” detailing improvements and success stories for department and laboratory annual reports.
5. **Encourage more cross-department discussion**—Physics is not the only STEM discipline working to improve the position of women and minorities; many other departments have already implemented successful strategies that can be used in any department. Information sharing and discussions like this increase collegiality and the cross-fertilization of ideas, and benefit the entire institution.
6. **Track program results**—Develop a schedule for collecting and disseminating information on the results of the program. For example, a month after the visit, have both the site facilitators and department submit a summary of the visit covering what was learned as a result, what the positive effects were, what challenges remain and what unintended consequences or negative effects there were. That summary can then be compiled and distributed with a list of chairs to contact for advice. Copies of the pre-visit survey or other pre-visit information could be included in this final summary, providing the information remains confidential. Program administrators could contact chairs annually for three years after the visit to track changes and also invite them to meet after two years to exchange ideas and discuss progress. As part of the follow-up, program administrators could come together and share visit comments with chairs prior to this meeting.

BEST PRACTICES

7. **Develop a follow-up survey**—As part of tracking the program's results, the program administration should define why this information is valuable, including whether the data just becomes a "crutch" that prevents real change or undermines the focus on process.

For Program Site Visitors

1. **Involve administration from the beginning to validate the visit**—Experience shows that the visits are more successful and have more participants if the chair and other administrators are invested in the program process. Administration "buy-in" is crucial for faculty and staff "buy-in."
2. **Communicate clearly with the chair prior to the visit**—Discuss the formation of the host committee and provide the chair with a checklist to simplify the preparation. Explain the visit format and process clearly.
3. **Encourage student participation in the program and elsewhere**—Undergraduate and graduate students are vital members of the department and crucial to the future of physics. Departments often find that the participation of graduate students on hiring committees keeps the process honest, especially after they have participated in a Conversation Visit.
4. **Provide notes to chair with confidential issues**—The chair should be made aware of any confidential issues that arise, but those issues should not be included in the final report so that the report can be released to everyone.
5. **Follow up after the visit**—Make it clear to participants that there will be follow-up from the program administrators and facilitators and describe what it will entail. A strong follow-up that participants know about from the beginning helps prevent the "natural decay" of enthusiasm from developing.

For Institutions and Chairs

Pre-Visit

1. **Make the commitment of departmental leadership to the program clear from the beginning**—The obvious involvement of administrators, especially the chair, validates the visit program and encourages everyone in the department to participate. The visit won't succeed unless the department is on board, and visible administrative support and attendance sets a good example. Chairs should attend as much of the program as possible, and make sure the department knows the chair will be attending.

2. **Emphasize that the visit aims to assist and improve the department**—One of the biggest stumbling blocks to improving the climate for women is fear of criticism and resentment at being told what to do. Conversation Visits were developed to increase awareness and allow the department to generate its own solutions, not to criticize or condemn. Faculty, staff, and students should be reassured that the purpose of the visit is not to assign blame.
3. **Make the format of the visit clear**—Knowing what to expect will encourage broader participation by all the faculty, post-docs, adjuncts, and students, male and female. The visit format should be communicated to all involved prior to the visit.
4. **Build an effective host committee**—Make sure it represents as broad a cross-section of the department as possible, especially students and others who may feel marginalized in the department. Once you have an effective group, make sure they do real work before, during, and after the visit, to get the most out of it. Stay involved.
5. **Suggest focus areas for the visit**—Work with the program facilitators and host committee to make sure problem areas you are aware of are brought to the table. This will "prime the pump" for other issues administrators may not be aware of.

Post-Visit

6. **Produce and distribute a Chair's Summary**—This can cover some of the confidential issues raised, but more importantly, it emphasizes the administration's commitment to change. The summary should be distributed to the department as a whole, participants and non-participants alike, to make clear that the program is meant to benefit and involve everyone.
7. **Make the case beyond overt discrimination**—Overt discrimination is easy to see, but many still don't realize that bias is subtle and unconscious, ingrained in the culture, and that we might not even be aware of it in our actions. Emphasize that changing the culture changes the atmosphere for everyone.
8. **Communicate best practices for on-going conversations**—Encourage staff and faculty to keep in mind the issues raised by the visit and keep the conversation going when appropriate: in committees, in faculty meetings, in classes. Support those who bring up the subject or who point out biases, and make that support clear and obvious.

RECOMMENDATIONS

9. **Implement an annual meeting of mentors**—The department should implement mentoring if this is not part of the department's policy already. Mentors should regularly meet with the administration to keep them informed on issues as they arise. Becoming involved with the APS Bridge Program (APS-BP) would be a good starting point for mentors.
10. **Involve graduate students with recruiting committees**—One facilitator observed that graduate student keep things “real” by their presence on recruitment and hiring committees. In this case the generation gap can be a good thing. And again, this might be a useful strategy for Partnership Institutions in APS-BP.
11. **Follow up with the women in the department**—Chairs should meet with women in the department at least annually to assess the effectiveness of improvements and initiatives. Chairs should ascertain if there are ongoing issues that have not been resolved.

RECOMMENDATIONS

For the Committee on the Status of Women and the Committee on Minorities (COM)

While it seems clear that Conversation Visits have had some success in improving the climate for women in physics, if the program is to continue, its strategies should reflect changing conditions of the 21st century. Although the numbers of women have increased over the past forty years, there has been something of a backlash in some disciplines and a remaining underlying suspicion that women are being awarded positions and honors simply because they are women. This is a common reaction when the status quo changes, and the programs should probably include some strategies to raise awareness of this reaction and counter it.

The present Conversations on Gender Equity Program is complementary to the long standing CSWP Climate Site Visit Program, but a hybrid program taking the best strategies of both Climate and Conversation Visits should be considered. Regardless, facilitators agree that some form of conversation program should be kept even if the somewhat confusing titles are changed to rebrand the program. New surveys could help institutions decide which program might be more useful for them. Present surveys could be reformatted for this purpose and also to provide an internal survey that would help reveal a department's issues and make the choice of programs more accurate.

It has been suggested that departments should co-fund a visit. Additionally there is a need for administrative support to be involved in all aspects of the visits, including: helping set up visits and assisting the site visit leader and team of facilitators in carrying out the visit, and preparing the report and the follow-up with the departments after the visit. A new set of requirements for development and dissemination of the report should also be created.

Expanding the reach and visibility of the program has also been suggested. This might include working with chemists and material scientists at national labs, and perhaps partnering with other STEM disciplines in the academy. The program might increase its visibility through videos about the program, posted on YouTube and the APS website, and through speakers at other STEM discipline conferences.

One way to expand the program is to increase the pool of available site visit facilitators. The original (rather small) pool of facilitators came from a brainstorming session, and their training session followed the Gender Equity Conference. Another training session should be held to recruit new facilitators, and childcare should be provided for those who wish to participate in the program itself and the training session. Current facilitators expressed that it was helpful to have the sites and dates set one year in advance to coordinate with facilitators' own schedules. A letter to facilitators' chairs recognizing this as community service for non-tenured faculty should also be provided.

For Department Chairs

It seems clear that many members of the physics community still do not recognize the problem of gender inequity, or if they do recognize it, they believe it is not important. Others who are aware of the problem may be afraid to broach the subject. Department heads need to take the lead in communicating the seriousness of the issue and how it affects everyone—not just women. Department heads should remind their departments that although the percentage of women PhDs is rising, the actual numbers are still small and that is unlikely to change without active efforts and their support.

One way to provide that support is to continue the conversations after the visit, whether facilitators are there or not. Chairs can periodically remind their departments that the conversation should be ongoing rather than a one-time event, and that everyone should feel safe in speaking up and voicing concerns. Once again, the chair should take the lead in not tolerating biased or harassing remarks or actions.

ONGOING CONVERSATIONS

Although conditions for women have changed a great deal since the formation of CSWP, there is still much work to be done. Despite these mostly positive changes, the physics workforce in academia and national laboratories remains one of the last areas in science where women are substantially underrepresented, relative to their proportion in the population. It is important to the field to broaden the talent pool as much as possible, and with women making up slightly more than half of incoming college students, shutting them out or projecting outright hostility toward them will only cripple the field in the long run.

Physics is fundamental to maintaining a strong workforce in health care, defense, and domestic security for the sake of the national economy, and this means making full use of every bright mind in the talent pool. A 2009 survey of earned doctorates by the National Opinion Research Center (NORC) at the University of Chicago shows that fewer than 30 percent of the doctorates earned in physics went to women.⁷ According to the AIP Academic Workforce Survey 2006,⁸ women represent only 13 percent of faculty of all ranks from the 760 degree-granting physics departments in the U.S. The 2007 Donna Nelson Report⁹ indicates that female representation at the major research universities is only 9.5% across all ranks. Although representation in physics continues to improve, we have the dubious distinction of being at or near the bottom of this measure. The low representation of women at research universities and national laboratories does a disservice both to women physicists and to the field of physics itself.

The reasons for inequity are many and complex, as are the solutions, but the primary motivation for changing this situation should be a desire to give talented women in the field a chance of success equal to that enjoyed by men. Although the conditions have changed for women, mostly for the better, the bias has in many ways become subtler and thus more difficult to recognize and address. Overt discrimination is no longer acceptable in academic settings, but unintended and unrecognized bias remains pervasive.

This is not to say that overt bias has disappeared, only that it is shrinking. One facilitator mentioned that it was “particularly eye opening...[to see] how overt and significant gender bias still exists to the point of sexual harassment and faculty who claim that men are better physicists, and faculty vehemently attacking us [the facilitators] for what we are doing. What was great was the small impacts we made by simply being there. There were people who clearly learned a lot from the conversations we facilitated...”

Keeping the conversation open and periodic reminders that bring the situation to the forefront can contribute to the continuing improvement of conditions for everyone. Giving women an equal opportunity to compete in the physics community raises the quality and number of the community's members by enlarging the talent pool. This not only helps faculty, but also encourages more students to study physics.

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8 *Doctorate Recipients from U.S. Universities: 2009*. Arlington, VA I (NSF 11-306), December 2010. <http://www.nsf.gov/statistics/nsf11306/theme2.cfm#5>

9 “Academic Workforce Survey, 2006,” American Institute of Physics, www.aip.org/statistics.

10 “A National Analysis of Minorities in Science and Engineering Faculties at Research Universities,” 2nd ed. D. Nelson, Norman, OK. January 2010. http://cheminfo.ou.edu/~djn/diversity/faculty_tables_fy07/07report.pdf

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APPENDIX A

A Conversation on Gender Equity: Follow Up to the CSWP Gender Equity Workshop

In 2007 the APS Committee on the Status of Women in Physics (CSWP) hosted a workshop, "Gender Equity: Strengthening the Physics Enterprise in Universities and National Laboratories" at the American Center for Physics on May 6-8. For more information, the final report can be viewed at www.aps.org/programs/women/workshops/gender-equity/upload/genderequity.pdf. We hope to build on the success of that workshop by entering into a "Gender Equity Conversation" program with the department chairs and laboratory directors who participated in this workshop. We propose to send a small group (typically 2 or 3 people) selected from members of the steering committee, CSWP, and individuals fully engaged in diversity issues, to physics departments/national laboratories to talk with chairs and other departmental members about the process of integrating gender equity into their programs. At the same time the visiting group would collect feedback from them that could be used in developing suggestions on what programs work best for addressing their problems and concerns. We anticipate conducting a total of 15 visits over 28 months.

During the original workshop, a large list of recommendations for improving gender equity at physics departments/national laboratories/funding agencies was developed. The chairs and directors who attended were asked to select a few of these recommendations for immediate implementation at their home facilities. In order to follow up on the workshop, we seek to obtain information on the success/failure of the recommendations that were generated. We also want to learn about other institutional changes that were made or attempted in order to explore what works for different departments and laboratories. At the same time, we see this as an opportunity to make suggestions if there are areas where we can be helpful.

We have assembled a group of about 25 discussion leaders who are willing to visit departments or laboratories that are interested in engaging in a dialogue. These visiting discussion leaders are prepared to spend a day at the host institutions talking to the department chairs and selected faculty representatives. Travel expenses for the discussion leaders will be born by APS (with funding from the NSF and Department of Energy). The discussion leaders would like to meet with students, faculty, the department chair, and his/her designees. We would also like to facilitate a brainstorming session for departmental personnel to examine the departmental culture and how it affects the climate for gender equity and expansion of diversity. This would help the faculty

to find solutions that can work for their own institution. At the end of the day, we will generate a summary of our notes that can be used both by the hosts and by us to forward our process. We want to learn what works best for physicists and to be able to carry that forward into future visits.

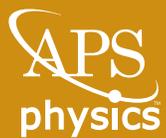
We stress that this process is very different from the formal site-visit program of the CSWP and the APS Committee on Minorities (COM). It is expected that this will be a dialogue with input flowing in both directions. Notes generated will be approved by both the hosts and the discussion leaders, and will be used by CSWP to broadly disseminate these ideas (without identifying information).

The discussion leaders are primarily peers of the departmental chairs/laboratory directors, drawn from chairs who attended the original workshop as well as current and past CSWP members. Most are working physicists, and in addition, there are a few social scientists among our discussion leaders who will contribute to facilitating this dialogue.

We will begin these visits in the fall of 2009 with the goal of completing 5 before the end of the calendar year, and another 5 by the end of the academic year in the spring.

Once a department has agreed to host a conversation visit, the unit head will be asked to put together a three person "host committee" which will be composed of the unit head, one person who is passionate about these issues and will be charged to help the unit head carry out the changes, and one senior member of the unit representing "prevailing attitudes." The following is a draft of how a visit may proceed.

8:00 – 8:45	Visiting committee meets with host committee
8:45 – 10:45	Joint committee (host committee and visiting committee) meets with selected faculty, graduate students, postdocs, and undergraduate students – 2hr to be allocated for separate meetings
10:45 – 11:00	Break
11:00 – 2:00	Joint committee has brainstorming workshop/lunch with a cross section of the department: issues and possible solutions
2:00 – 3:00	Roundtable discussion of things that work elsewhere
3:00 – 4:00	Joint committee: Concrete plans for changes in this unit / writing of the notes



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