Ohio State University: Department of Physics
APS/CSWP Advisory Committee Report

Site Visit October 2-3, 2003

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INTRODUCTION

The invitation for a site visit by the Committee on the Status of Women in Physics (CSWP) of the American Physical Society (APS) to examine the climate for women in the Department of Physics at the Ohio State University (OSU) was made to the CSWP/APS by the Department Chair, Professor William Saam. On the afternoon of October 2, and for a full day on October 3, a CSWP/APS site visit team visited the Ohio State University campus. The team met with the Chair, William Saam, and with the female faculty, the male faculty, a selection of female and undergraduate and graduate students, several female staff, and with the Vice Chair for Undergraduate Studies, Linn Van Woerkom, Vice Chair of Graduate Studies Tom Humanic, and Vice Chair of Administration Evan Sugarbaker.

The team also met with several OSU administrators, including President Karen Holbrook and Provost Barbara Snyder, the Dean of Mathematical and Physical Sciences, Richard Freeman, with Judith Fountain, Director of the Woman's Place and Assistant Vice Provost, the Executive Dean of Arts and Science, Mike Hogan, the Interim Vice President of Research, Thomas Rosol, and the Interim Sr. Associate Vice President for Research, Robert Perry.

The CSWP/APS team was impressed by the high turnout to all of the group meetings and the high level of enthusiasm of the participants in all of these meetings. The visiting team would like to thank Professor Bunny Clark of the OSU Physics Department and Ms. Sue Otwell of the American Physical Society for their help in scheduling the visit, and in preparing the team so efficiently for the actual site visit.

Prior to the site visit, the CSWP/APS team received statistical information from the department on the numbers of female faculty in the department, as well as on undergraduate and graduate student enrollment and retention rates. The team also received completed surveys from female and male students, although the response rate on the surveys that were returned was low. These surveys were supplied to the department by the APS. From the statistical information provided, the team was aware in advance of the small number of female faculty (2 senior women and one very junior woman from another Ohio State Campus) and the modest number of female postdoctoral researchers (five, of whom three are on-site and two are off-site) at OSU. The numbers of female graduate and undergraduate students at OSU were slightly below the national average. Feedback from the surveys indicated a very good environment for both female and male students at OSU, and this impression was confirmed during the meetings with the students.

From meetings with the chair, the faculty, the students, and the staff of the physics department, the CSWP/APS team learned that the department is very supportive of increasing the numbers of women in physics at all levels. The Department has created a welcoming and positive environment for both female and male students in physics, and deserves to be recognized for this. The team was impressed by the positive attitude of the students, who said that they felt at home in the caring environment of the Physics Department and the easy availability of faculty members. However, the CSWP/APS team was concerned that the Department may not fully realize the tremendous resource they have enjoyed because of the presence of two senior female faculty in the department. These faculty serve as networking centers within the Department for the female students, as well as serving as role models for these students, and in providing a supportive environment for students more generally. Moreover, these senior women faculty are also active within the university, extending the caring environment much more broadly on campus.

A main conclusion of this report is that it is critical that the Department be successful in increasing the number of female faculty and postdoctoral researchers in physics. This will help preserve excellence in research and education within the Department, and also increase the number of role models for female students so that they can aspire to the same level of achievement as their male counterparts. As discussed in detail later in this report, the team learned that a smaller fraction of the female students both at the undergraduate and graduate levels had high aspiration levels in pursuing physics as a long-term career as compared to their male counterparts.

The Site Visit Team believes that the Physics Department at the Ohio State University is in a unique position to achieve its diversity goals with respect to women in physics. From meeting with university administrators, it is apparent that the Department will have strong support in terms of start-up funds and faculty positions to hire additional female faculty at both the junior or senior level. To this end, the site visit team has included

several suggestions for recruiting faculty in this report, in order to assist the Department in its efforts and to help to achieve its stated goals to increase the participation of women in OSU physics at all levels from senior faculty down to undergraduate students. The presence of a more diverse faculty in the Department will bring about desired change, and the Physics Department at OSU is well poised to make this transformation now. The mark of a successful Departmental climate for women is one in which the enthusiasm and ambition of the women undergraduates is transformed smoothly into successful and ambitious women graduate students, with dynamic, forging-ahead female postdocs, energetic junior women faculty, and productive, happy, senior women faculty who all serve as positive role models.

Undergraduates:

The Ohio State University has a large cohort of undergraduate students spread over about seven different major options, ranging from a graduate-school-prep track to a physics-education track to an engineering-physics track (that is run out of the College of Engineering). Most BS candidates in physics enter as declared physics majors; few come from introductory courses at present. In recent years, the number of physics majors has climbed from $\sim$130 to $\sim$200, which is very encouraging indeed! About 15% of the declared majors, but only about 12% of those earning a BS in physics, have been women over the last 5 years; this is a bit lower than the national average. Women physics students have maintained grade point averages comparable to or higher than those of the men over this period; almost no women took the GRE or attended physics graduate school (as opposed to about a half-dozen of the men each year). Roughly 1/3 to 1/2 of all students who start as physics majors do not graduate with a degree in physics; the fraction of women dropping the physics major is slightly larger than the fraction of men doing so. The department does not have a sense of why this occurs or where the students migrate to. A new student database is being built, and this should aid in answering such questions when used in conjunction with exit interviews, which are highly recommended for evaluation purposes.

Advising of first-year students is handled by the Vice-Chair for undergraduate studies. Students are then assigned a faculty adviser (7–8 faculty perform this function) for the rest of the student's stay in the Department. Students are not required to speak with advisors in order to register for courses, so many never meet with their advisors at all. Those who do so say that the advisors are friendly, willing to talk, and knowledgeable about physics courses for majors. On the other hand, the undergraduate students report mixed success in getting proper information about requirements for double majors or about the general education requirements from their advisors.

Roughly half of students graduating with a physics degree have done research in faculty labs on campus or through summer REU programs. The Department awards 3–4 research scholarships to undergraduates each year to leverage faculty support of research students. Such strong support for student participation in research is a very positive feature of this Department.

The SPS chapter (advised by Prof. Furnstahl) is now in an active phase, with about 60 members. Weekly seminars, where faculty speak about their research, are held throughout

the year. The honors society (Sigma Pi Sigma) has recently been revived; this group takes on volunteer work, such as writing Congress about science funding, visiting middle schools, or running a science demonstration booth at the Ohio State Fair, all of which have been recent SPS activities.

The undergraduates enjoy the use of a spacious study lounge adjacent to the graduate student offices. The part of the lounge open to all physics majors includes a large open area with chairs and tables and two computer rooms, which double as meeting spaces for study groups. The SPS office is off to one side. Two large rooms with white-boards and conference tables are used for office hours in the service courses for non-majors. The lounge is in the middle of the building, so faculty and graduate students frequently walk through - and are easily persuaded to stop and answer questions. In addition, a half-time lecturer is assigned to the study area 3 hours/day to help students with homework. The undergraduate majors say that the lounge is an excellent place to hang out and discuss physics with their classmates; some say that it is so popular that they tend to go elsewhere for really intensive work. When the Department, including Faculty and graduate students, moves to a new building on campus, the undergraduate classrooms and study lounge will remain behind; the undergraduate students express concern that this will reduce their contact with both faculty and graduate students.

The Site Visit Team met separately with 11 female and with 18 male undergraduates, spread over all four class years. Male students planning graduate study were particularly well-represented (compared with overall departmental statistics) in the group that met with the CSWP/APS team, and the fraction who have done research with faculty was large. A number of students plan careers in K-12 education; a few expressed interest in working in industry. Men students were more likely to be thinking about graduate study and a career in research and education than the women students at comparable levels. The students reported being pleased with the professors' accessibility and concern for students, with access to labs, mailboxes, computers and the shop [if doing research]. Those working in research labs enjoyed the contact with graduate students and the opportunity to learn from them about picking a PhD adviser or looking for a job. Otherwise, students have relatively little contact with graduate students, since the graduate student teaching assistants work as graders rather than as recitation leaders in undergraduate courses. Students expressed particular interest in receiving additional mentoring about career prospects, summer research opportunities, and graduate schools. Some knew about the national on-line mentoring MentorNet, but others did not; perhaps the Department can advertise this more aggressively. Some mentioned that summer REU opportunities are advertised mainly by last-minute e-mail; a dedicated bulletin board and a departmental web-site link to the NSF REU or other related websites would be useful. Some useful websites include:

- NSF REU program:
  www.nsf.gov/home/crssprgm/reu/start.html
- DOE LAB fellowships
  www.scied.science.doe.gov/scied/erulf/about.html
- NIST summer fellowships

www.surf.nist.gov/surf2.htm

- APS site for summer fellowships
  www.aps.org/educ/com/scholars/other.html.

Making the NRC guides to graduate schools and careers available could also help with mentoring. Some students also expressed concern about the introductory 130 series of courses, saying that more flexibility in allowing well prepared majors to skip all or some of these courses would be desirable.

On the question of gender in physics: The women students reported feeling that they received an equivalent education to their male counterparts. Both men and women said their study groups are co-ed. The men were aware that there are fewer women than men students, and wondered whether mis-impressions about the amount of high-school physics and math preparation required for majoring in physics were the cause. The women students stated forcefully that increasing the number of women on the faculty was very important to them. They said that having more women who've made it through the system available to talk to undergraduates and to be role models would be a big improvement. Sometimes, they said, it's just easier to talk to a woman. In the meantime, more contact with the women graduate students (beyond the quarterly lunches sponsored by Prof. Clark) would help fill this gap.

In summary, the undergraduate students in the OSU Physics Department are generally very happy with the quality of the education they receive, the accessibility of their professors, the opportunities to do research, and the common study space in the very center of the building. Concerns raised about advising and better communication among students at different stages of the academic track should be easy to address and facilitating these interchanges will only improve the already positive atmosphere in the OSU Physics Department.

Recommendations:

1. The impending move to the new building has the potential to create a problem by physically separating the undergraduates from the graduate students and the faculty. Concrete strategies to address this problem are needed. Examples might include: social events or seminars to bring undergraduates to the new building, a study space for undergraduates in the new building, scheduled faculty/graduate student time in the study space in the old building.

2. The advising system needs improvement. Several specific concerns were raised by students, as listed here.

   (i) Guidance on what one can do with a Physics B.S. degree, other than attend graduate school in physics; seminars by physicists now in non-academic careers (patent attorney, science journalist, manager in industry) and even an annual career evening with multiple speakers/posters could help.

   (ii) Clearer information on the requirements for double-majors and dual degrees. Perhaps one faculty adviser should be assigned to become an expert on each of the most popular double degrees (education, biology, pre-med, etc.).

(iii) Clearer information on the general education requirements. There may be a new university web site designed to help with this; if so, students should be reminded about it frequently.

3. A student-faculty pizza night once each quarter could be a good forum for airing issues of mutual concern. Attendance by the chair, vice-chairs, and faculty advisors would emphasize that the faculty are interested in what the students think.

4. Undergraduates expressed an interest in speaking with more senior students (undergraduate and graduate) about what lies ahead for them in coursework, GREs, and job applications. Social events to bring appropriate student groups together would be appreciated. To keep the size of the group manageable, each event might focus on a particular subset (women, condensed-matter physicists, students interested in non-academic careers?).

5. To keep the physics pipeline full at Ohio State, we suggest involving undergraduate students in recruiting at their former high schools and bringing alumni back to the department to provide career mentoring especially in areas of particular student interest.

6. To increase the fraction of women physics majors, we suggest that the Vice Chair visit the introductory classes for non-majors to recruit additional physics majors and that he continue with recruiting visits to high schools and with the OSU Honors courses in physics, which seem to be very effective. The fraction of women students in the introductory classes or high-school classes is higher than that in the physics major at present. Stressing the intrinsically interesting questions that physics addresses and the ways physics benefits society are particularly useful in recruiting women students. Talking to them about the physics pipeline is not as useful, as they tend not to be aware of such issues at that age.

7. A GRE preparation seminar and other venues run by faculty or graduate students can benefit undergraduates. Coaching both on content and on test-taking strategies is helpful.

Graduate Students

The site visit team met with men and women graduate students in two separate groups, over lunch. Both meetings had a large number of attendees and the discussions were very lively. As with the undergraduates, both groups were very positive about the welcoming climate of the Department and the accessibility of faculty. The teaching assistants (TA) feel that they have a good work and meeting space in the "stacks", and both men and women graduate students pointed to that space as a good environment for studying and meeting other students. Both groups, however, would like to have more women graduate students in the Department: the men commented that it would likely improve the study group environment, and the women thought it would help them to feel less isolated. The CSWP/APS team feels that the Department can potentially benefit from a more aggressively

targeted recruitment of women and minority applicants: competition for this relatively small pool of candidates is high. The CSWP/APS team got the impression that the presently enrolled students would be willing to help in the recruitment process, either by visiting their own former undergraduate institutions or by calling prospective students on the telephone. Other strategies that some departments have taken are to identify potential candidates by obtaining lists of women and minority students who take the GREs, or by actively recruiting at all-female undergraduate schools. Both groups of graduate students also thought that a more diverse faculty would improve the graduate experience at OSU.

One issue that both men and women graduate students raised was the need for more information and guidance about possible career paths other than teaching and research, particularly since most of the OSU PhD students eventually follow more diverse career paths. The Department has an excellent web site with alumni contact information and career advice, but more advertisement might be necessary to get students to take advantage of this resource. Other activities that could help make students more aware of their options are visits to OSU by alumni who are working in industry (perhaps once per quarter), or a possible once-per-year career day with several different types of visitors with whom students can interact. Colloquium speakers who have experience in industry could meet with graduate student over lunch for mentoring and discussion events.

Networking among students, both across the graduate ranks and between graduate and undergraduate students, was an additional area where morale could be improved, particularly for the women students. The women graduate students noted that they have trouble finding each other because they often only get to know the students in their particular class (year of entry) and then they lose track of one another once they disperse into research groups. Providing opportunities for a few social events involving various combinations of students (women graduate and undergraduate students, all graduate students, all graduate/undergraduate students, etc.) could likely help improve the sense of community among the graduate students generally and the women students in particular.

A few students had bad experiences as teaching assistants. Some were completely overwhelmed by being a TA in the first quarter just after arrival on campus. Other students felt they did not receive enough training to become effective in teaching. Two possible ways to address this problem are: 1) to provide longer term TA training throughout the first quarter and 2) to relieve the first-quarter students from TA duties until they can settle into the graduate school routine. A model that has been used elsewhere is a one-time infusion of resources to make the transition to having more second year and fewer first year teaching assistants. Once the transition is made and a steady state is reached, then no further increases in budget level are needed. A few of the women TAs mentioned experiencing inappropriate comments by male students in some of the service courses, but the women TAs seemed to be able to handle the situations well. Faculty who teach the service courses and have female TAs may need to be aware of such possible behaviors and the faculty supervisors should be proactive in discouraging inappropriate classroom behavior.

One cause for concern was the difference between the female and male graduate students in terms of career aspiration levels and the fraction of students planning an academic career. A large fraction of the male students who were interviewed said that they were interested in

academic careers, whereas a much smaller fraction of the women planned to pursue a position in academe. This is very likely due to the lack of sufficient numbers of female faculty and postdocs to serve as role models. For example, the CSWP/APS team met with only one female postdoc: actually, there are five women postdocs in the Department and two of these are normally off-site. This relatively small number of women postdocs was notable, and, when combined with the few women faculty, results in very few examples of women PhDs higher up the pipeline for the female graduate students to view as role models. Aggressive recruitment of qualified women PhDs for postdoc positions, particularly in groups that carry out research on campus, should be encouraged.

Recommendations:

1. The Department should give high priority to increasing the numbers of women faculty, graduate students, and postdocs to further improve the welcoming environment for women graduate students.

2. The Department should explore ways to do more targeted recruitment of women graduate students in order to increase the applicant pool of female candidates. It is likely that the currently enrolled students can help with recruiting efforts.

3. The Department should provide structured opportunities for students to socialize in various different groups. While this is beneficial for all students, it is particularly good for the women graduate students who, because of their small numbers, sometimes have trouble finding each other.

4. An annual meeting between the Department chair and graduate students would provide an opportunity to discuss issues of concern, should they arise.

5. The Department should look for ways to provide more mentoring and career advice for graduate students who want to pursue career paths other than teaching and research. Possible venues might include bringing alumni back to campus for talks and meetings, holding annual career days, and/or arranging mentoring sessions with visiting seminar or colloquium speakers. At a minimum, graduate students need to be made more aware of the existing excellent web site.

6. To increase the aspiration level of the female graduate students, every effort should be made to provide role models and encouragement to these students. While hiring more women faculty and postdocs is the best solution, bringing in female alumni and speakers should also be helpful.

Faculty

During the review process, the Site Visit Team met with all three female faculty members (two senior, and one junior) and with a large fraction of the male physics faculty. The

CSWP/APS team was particularly well impressed with the turnout of male faculty for this meeting.

There are many excellent aspects of the OSU Physics Department Faculty. The members of the department are well established in their respective research fields. The Department also has a good distribution of physics subfields represented and available for graduate student research. The age distribution of the faculty is healthy, and the faculty are lively, available to students, and willing to communicate.

The main issues brought to this visiting committee by the faculty were related to faculty hiring. Their concerns were:

1. The Department must fill the positions that are presently open. Four of the latest searches have not been successful. The recent successful searches have gone to men. Recent attempts to hire women through regular searches were not successful. Two targeted searches for women are in progress at this time.

2. The Department seeks to raise its ranking through a few strategic hires. Women should certainly be considered.

3. The Department would like to increase the number of women and minority faculty. However, recent attempts to hire under-represented groups at the main campus have not been successful – the one exception being a recent junior female faculty hired at a branch campus, and this branch will have her tenure reviewed by the OSU Physics Department.

With respect to this final goal, the Department is clearly placing a high priority on increasing the number of women on the physics faculty. At present there are only two women on the faculty of the Columbus OSU Campus. Both are senior, and one plans to retire soon. Comparing OSU to other schools ranked in the top 20, which typically have 5 to 10% female faculty, these numbers are low and the age distribution is particularly unfavorable. However, there is a firm resolve from the faculty to fix this situation.

In an innovative move, the new Dean Richard Freeman has agreed to provide positions beyond those requested in the departmental plan, if those positions also increase diversity. This move is strongly supported by the upper administration of Ohio State University. The Department has had only two weeks to react to this opportunity. Therefore, it was impressive to find a number of groups within the faculty that are already mobilizing to take advantage of the Dean's offer. Clearly those who react first are most likely to benefit from the availability of new personnel slots and resources.

Increasing the number of women faculty is in concert with the other goals of the Department. When competing for attention in the national rankings, a star female hire can help to bring a department increased publicity. Hiring women also dovetails with the need to fill the presently open positions in the Department. Since there are excellent women in all of the fields of the present searches, there should be no conflict between diversity, academic goals, and excellence.

The most urgent need of the Ohio State Physics Department is to develop methods for identifying potential candidates. The frustration of members of the Department, who

feel that they have honestly tried and failed to identify excellent female candidates, was striking. To this end, the CSWP/APS team makes several practical suggestions to increase the probability that a successful hire will occur. While the suggestions below are couched in terms of seeking senior female candidates, these are actually good practices for finding targets of opportunity, regardless of level, gender or race.

1. Widen the definition of the physics subfields where you are looking.

    - In particular, explore emerging subfields which are not already represented within the Department. There tend to be fewer nontraditional candidates in the established subfields compared to those fields which are emerging. Examples of newer physics subfields include experimental cosmology, biophysics and nanoscience.

2. Identify the women who are giving talks, as these are most likely to have active and successful research programs.

    - Study the list of plenary speakers at prestigious conferences over the last two or three years. Examine the colloquium series at top universities and national conferences as another alternative approach. You will find good opportunities among these lists.

3. Look at who is holding office within the professional societies (e.g., executive committees of divisions of the APS, the APS Council, etc.).

    - This identifies women with a broad view of their physics subfield. These are also women held in sufficient esteem to be elected. A corollary of this is to look at who is selected to serve on panels organized by funding agencies. These are women who are considered highly by the funding agents, and thus likely to have a lot of savvy about maintaining a strong research program.

4. Expand your search for a senior candidate to women beyond those in traditional research university positions.

    - There are many women at national laboratories and in industry who would do well in careers in academia. The opportunity to teach and have graduate students can be a strong attraction for these women. These candidates can be harder to identify, since they may not be attending the same conferences as the faculty in the OSU Physics Department. Therefore, it is important to utilize your connections with colleagues outside of OSU.

5. Do not eliminate a name from the list until you have established from her that she will not come.

    - Too often, good potential candidates are struck off the list before they are contacted based on assumptions about their personal life. In our experience, this affects women much more than men. An inquiry costs you nothing. The answer may surprise you.

6. Give attention up front to the common "2-body problem" which involves moving a spouse who is already professionally established.

    - While the "2-body problem" affects both men and women, it tends to affect female physicists more, since they have a higher probability of being married to professionals in the same or related fields. Since the issue is so common, it is best to prepare for this possibility ahead of time. In your upcoming discussion with the Dean, negotiate for spousal hires not to count against Department hiring caps. When you have a candidate in mind, if you are also in favor of hiring the spouse, make the joint offer up-front, without singling out either candidate. Treat the couple as a pair of colleagues – because that is what they are when they are in the work environment.

7. Work with the Dean to develop innovative programs which will place you in a good position for targeting candidates in the future.

    - An example of such a program would be a gender-balanced visiting scientist program which attracts senior scientists by providing additional support for them to take sabbatical leave at OSU. This could lead to a lively intellectual program, which exposes the OSU faculty and students to many women physicists. A well-regarded visiting program would be a great asset for your rankings. It is also an opportunity to identify future targets of opportunity.

8. Mentoring new female faculty is important for their development and retention, but can be done by both male and female faculty.

    - The use of both male and female faculty for mentoring new female faculty may need to happen in order not to over-burden the existing female faculty. The Department should prepare itself to create a welcoming environment for the new female faculty that will be hired, and be aware that a woman is unlikely to feel awkward unless the other members of the Department feel awkward about her.

Once you have identified your targets, it is important to be in a position to attract these potential hires. It is unclear what went wrong in the past searches for women candidates. While each case is different, there may be common threads that lower the overall success rate - for example, slow response time during negotiations, start-up packages that were not competitive, etc. Because all of these cases have bearing on your ability to bring in female senior faculty, you could make use of the Women's Place to answer these questions. As neutral individuals who are not physicists, the Women's Place Staff may be able to learn more about the reasons for rejection than could a member of the Department. Also, because the Women's Place will not directly benefit from the answers, their results could be a powerful tool in arguing for more resources to the OSU administration. Such a project is in keeping with other studies done by the Women's Place. One area where they may be able to be especially helpful is in doing exit interviews with candidates who did not come.

Beyond re-establishing its base of senior women, it is important for Ohio State University that younger women faculty be coming through the pipe-line. Therefore, the Department

also needs to give thought to a program for hiring junior women. The experience of the CSWP/APS team members with other Departments across the nation has shown that if the applicant pool is nearly gender equal, that the interviewees will typically be gender balanced. Once this occurs, there is a high probability that a woman will be hired. Thus, once a Department establishes favorable initial conditions, the system is more likely to reach a successful conclusion.

Increasing the initial pool of female applicants requires both innovative thinking and work on the part of the search committee. Here are some examples of what can be done:

1. Contact candidates individually. A personal e-mail is more likely to elicit a response than a global mailing or advertisement. Potential candidates can be identified by looking at conference schedules, contacting the heads of collaboration, and by asking the junior faculty (both at and outside of OSU) whom they know.

2. Many young stars are already identifiable half-way through their postdoc. Why wait until they go "on the market"? Encourage stars to apply early, with the promise that, if hired, you will wait until the postdoc career is completed. This is a win-win situation. You have the opportunity to hire to a star before other schools are in competition with you. The candidate feels good about OSU because you recognize her capability.

3. In the case of programmatic hires, encourage women in related fields to apply. Many young postdocs may not have thought of making transitions which are actually very sensible. For example, a young superstar in heavy ion physics might turn out to be a great candidate in high energy collider physics, exactly because she brings a fresh point-of-view.

4. Take a good look at your own postdocs. You hired them because they are good. They already have a strong attachment to OSU. You should consider promoting them. A common objection to "growing your own" faculty from the junior level (which was voiced once again during this visit) is: after investing a great deal, she will just be stolen by other institutions. It is certainly frustrating when this happens, but this is a narrow-sighted view in the long run. To rise in rankings, then you want faculty who are the envy of all of the other institutions. Attempts at poaching are statements that your faculty is getting a lot of notice. The important thing is for the Department to be aware of who is being looked at and for you be ready to respond quickly. Do not wait until a star has an outside offer in hand before telling her that the Department wants to keep her!

At present, OSU is in a position to offer funds to attract junior and senior female faculty. However, in the future, extra funding may be needed. The CSWP/APS team recommends that the Department work with the Dean to investigate the NSF Advance Grants for Institutional Change. Such a proposal would have to be coordinated through the Deans office, since the Dean would be expected to cover requests from multiple departments. However, the Physics Department could provide valuable leadership for such a project at OSU.

The issue of hiring minorities was raised by the faculty who were interviewed. It is extremely difficult to recruit minority faculty – members of this CSWP/APS Committee

face similar problems at their own institutions. Unlike the case of women, the pool of minorities in Physics is very small. Establishing links to HBCUs and to largely Hispanic universities may allow OSU to track promising candidates from an early age. As a State University, OSU draws from a large pool of students and therefore may be able to identify potential individuals at an early age.

We end this section on faculty by noting the important work of Professor Bunny Clark of your Department. She is a highly respected scientist with an international reputation in physics, who has also spent much time over the years to improve the opportunities for women in Physics nationwide. She is well-recognized for this within the APS. She has clearly had a big influence on women in science issues within OSU. CSWP/APS teams have rarely visited institutions so open to the idea of increasing diversity and it is clear that she played a big role in fostering this openness. However, she could not have done this without the support of a strong contingent within the Department. This wide faculty support of Professor Clark's leadership effort gives us confidence that the faculty will achieve their goals of increasing the presence of women in Physics at OSU at all levels.

Recommendations:

1. Hire additional senior female and minority faculty, using the methods outlined above and any other approaches that are useful.

2. Hire junior female and minority faculty, using the methods outlined above and any other approaches that are useful. When junior faculty are hired from this group, consult with the existing senior faculty and the Women's Place to make the Department a welcoming place and to ensure retention.

3. Mentor the junior female faculty member who teaches at the branch campus, to ensure her success in her career and in achieving tenure.

4. Mentoring new female faculty can be done by both male and female faculty, and this may need to happen in order not to over-burden the existing female faculty. The Department should prepare itself to create a welcoming environment for the new female faculty that will be hired, and be aware that a woman is unlikely to feel awkward unless the other members of the Department feel awkward about her.

Postdoctoral Researchers, Staff and Lecturers

The Site Visit Committee met with a group of female staff in charge of administration, payroll, support for physics education, secretarial support, computing facilities support, technical support, communications, purchasing and travel. We also met with one postdoctoral researcher (who was present at the meeting with the women graduate students). In our report, we have grouped this diverse group under the heading of Other Physics "staff".

Several of the staff members have been working in the Physics Department for a long time (greater than 10 years), indicating a generally good working environment. The staff meet

once per quarter for an informational gathering and exchange. Staff members told us that they appreciated the increased organization that has resulted from having a central office for advising, with the faculty advising office and support staff all in one place. Staff members enjoyed the opportunity to contribute to the educational mission of the Department, putting "together fun tools for people who are doing cool stuff". Although the work was sometimes "challenging", they reported very much enjoying it.

The staff very much appreciated the efforts of John Whitcomb (Department Manager) to build Esprit de Corps. It was said at the meeting with "Staff" that in most of the University, staff members were under the impression that they are under-appreciated. In physics, team-building efforts have made a difference. Although some faculty groups were seen as welcoming, the staff also reported that some of the men in the Department do not respect the women departmental staff, perhaps not respecting the service they provide to the Department, not acknowledging the professionalism of the women staff members, and generally "looking down" on them. This attitude is not respectful of the responsibilities taken on by the staff, who are crucial to running the Department.

Currently, there are no Departmental awards for high achieving staff members. Staff awards do exist, however, through the university, and several physics staff have won such awards. In this case, nominations were put forward by the Department. The university does provide career development programs for staff, through training programs and courses. Staff members avail themselves of these programs, and they gain valuable expertise in many areas, some of great present importance to the Department - such as visa-related graduate student issues and the hiring of foreign personnel. Staff members feel that the faculty may not realize the high level of staff expertise in relevant areas, and staff feel that the faculty might take better advantage of staff knowledge to increase efficiency and avoid delays in administrative matters.

Some of the staff echoed what we had learned from the undergraduates - that an upgrade to the students computer facilities is needed, so that all the important software programs used by the students were available on each computer.

The staff also echoed the sentiments expressed by many of the students—that the lack of female role models for the students was an issue. Some comments included "I imagine the students find it a problem because it looks like it's hard for women to get faculty jobs. I think a lot of the male professors want to encourage women students, but looking at the numbers is discouraging," or that a "tremendous amount of hierarchy comes in when the Department is mostly male," or "we always have to have our people skills on," or that "it's one of the most male Departments I've ever worked in."

Finally, it is noted that no male postdoctoral associates met with the Site Visit Team, although there are 40 male postdoctoral associates in the Department, but this may simply have been the result of the tight schedule.

Recommendations

1. The large number of female personnel on the support staff of a mostly male physics faculty makes it very important that the male faculty and students treat the staff with

professionalism and respect. The staff should feel that they are an integral part of the Department and that they are appreciated and valued for their efforts. Efforts to improve the climate for female staff will improve the general climate for women in the Department and also impact women in physics.

2. If it does not already exist, a document (or web site) could be set up to encourage Department members to consult specific staff members on specific areas of staff expertise. For example -

   - Obtaining visas for students, faculty, postdocs, visitors
   - Procurement procedures and related tax regulations
   - Travel regulations (insurance, use of US carriers, permission for foreign travel)
   - Postdoc appointments: procedures, benefits information, etc.

3. The Department should ensure that civil service employees (as opposed to A&P - administrative and professional, who are mostly men) are nominated for university staff awards as appropriate. Most of these civil service employees are women and they feel that they are seldom nominated. (The actual record shows that in the past eight years six people from the Physics Department, including two women, have won Distinguished Staff Awards.)

4. The Department Chair indicated that a plan is in place to move away from a quarter-by-quarter system for hiring lecturers to teach service courses. This practice will be replaced by multi-year instructor contracts and a greater proportion of tenure-stream faculty involvement. The visit team perceives this as a good way to go.

5. Lecturers, instructors and postdoctoral researchers should be made to feel part of the professional physics staff of the Department. Career guidance, annual evaluations and opportunities to participate in proposals and other educational efforts should be provided when appropriate.

Concluding Remarks

The overall impression of the site visit left with the CSWP/APS team is that there is generally a very positive climate for both women and men in the Physics Department at Ohio State University. The positive climate within the Department for women provides a strong base upon which to build and achieve the desired Departmental goals of increasing the opportunities for women at all levels from the undergraduates through the faculty ranks and to at least reach a parity with national averages in the percentage representation of women in physics at all levels. The leadership of the Physics Department and at all higher levels, from the Deans to the President, are all committed to increasing the number of women Physics faculty. Practical suggestions for implementing this highest priority recommendation of the CSWP/APS committee are given in the report. Suggestions are also given to high priority recommendations for increasing the number of women undergraduates, graduate students,

and postdocs to at least national averages, while maintaining and perhaps further improving the fine present climate for women in the Department.

Committee Agenda

CSWP SITE VISIT
Agenda
October 2, 2003

Site Visit Team arrives on Oct.2, 2003, and will be picked up by the limo from The Blackwell.

- Profs. Mildred Dresselhaus and Elizabeth Simmons arrive at 9:41 am
- Prof. Janet Conrad at 10:09 am
- Prof. Elizabeth Beise at 10:30 am
- Prof. Margaret Murnane at 2:52 pm

11:00	Prof. Dresselhaus will be driven at 11:15 to the Office of Dr. Fred Sanfilippo to discuss the Senior Vice President of Research Search. She will be driven to the Faculty Club at 12:15.
12:15-1:45	Prof. Dresselhaus will meet with the members of the Search Committee for the Senior Vice President of Research
2:00-2:45	Prof. Art Epstein will take Prof. Dresselhaus to Smith Lab to meet with John Wilkins (Room 4100). Dean Freeman may join this discussion.
11:30-1:00	The Site Visit Team will have lunch and discussion with Richard Freeman, Dean of MAPS, at The Blackwell. Bunny Clark will escort the team to Smith Lab so they can look at our new Physics building going up.
1:30-2:30	Seminars: • Prof. Elizabeth Simmons - Smith Lab 4079 • Prof. Elizabeth Beise - Smith Lab 1094
3:00	Cookies/donuts/coffee - Smith 1094
3:30-4:30	Prof. Dresselhaus's colloquium - Smith 1005
5:00-5:30	Team Meeting with Interim Vice President for Research, Thomas Rosol, and the Interim Sr. Associate Vice President for Research, Robert Perry - Room 1094.
	Bunny Clark takes the team to the Blackwell Inn.
5:35	Meeting with the Physics Women Faculty at The Blackwell, followed by dinner at 6:30.

7:00-8:30	Will Saam, Physics Dept. Chair, will join the team for discussions and breakfast.	The Blackwell
8:40-9:20	Meeting with the Vice Chairs • Linn Van Woerkom, Vice Chair for Undergraduate Studies • Tom Humanic, Vice Chair for Graduate Studies • Evan Sugarbaker, Vice Chair for Administration	1094 Smith coffee/fruit/ juice/bagels/cookies
9:30-10:10	Meeting with Undergraduate Women Students	1094 Smith fruit/juice/bagels/ cookies/coffee
10:20-10:55	Meeting with Undergraduate Men Students	1094 Smith fruit/juice/bagels/ cookies/coffee
11:00-11:40	Meeting with Men Graduate Students and Postdocs	1094 Smith lunch
11:45-12:30	Meeting with Women Graduate Students and Postdocs	1094 Smith lunch
12:35-1:30	Meeting with Men Physics Faculty	1094 Smith snacks/drinks/juice
1:35-2:10	Meeting with Judith Fountain, Director of the Woman's Place and Assistant Vice Provost	1094 Smith
	Bunny Clark escorts Team to the next meeting at Bricker Hall	
2:15-2:35	Meeting with President Holbrook	205 Bricker Hall 190 N Oval Mall
	Bunny Clark escorts Team to the next meetings at University Hall	
2:40-3:30	Meeting with Mike Hogan, Executive Dean of Arts & Science	186 University Hall 230 N Oval Mall
	Bunny Clark escorts Team to the next meetings at Bricker Hall	
3:35-4:00	Meeting with Provost Barbara Snyder	203 Bricker Hall 190 N Oval Mall
	Bunny Clark escorts Team to Smith Lab	
4:10-4:40	Meeting with Women Staff	1094 Smith snacks/drinks/juice
4:40-5:20	Meeting with Will Saam, Chair	1012 Smith
5:25	Meeting time for the Site Team to discuss the report. Could have the meeting at The Blackwell. Bunny will escort.	1094 Smith
6:30	End of the visit. Return to hotel for dinner meeting with the Site Team or leave for airport.	