

**Report from the Site Visit to Brookhaven National Laboratory (BNL) by the
Committee on the Status of Women in Physics
Of the American Physical Society
June 22-23, 2010**

Executive Summary

At the request of Laboratory Director Sam Aronson, the Committee on the Status of Women in Physics (CSWP) organized and conducted a site visit to Brookhaven National Laboratory (BNL) on June 22-23, 2010. The purpose of the visit was to assess the Laboratory's climate for women in physics and more broadly across the range of science and engineering at the Laboratory, as well as to provide advice to the Laboratory's leadership on how to improve inclusiveness, retention, recruitment and the presence and advancement of women among scientific/technical personnel and users.

Brookhaven is an exciting place for physicists (and other scientists and engineers). The Laboratory offers forefront opportunities in research and technology development. Female physicists share their male colleagues' passion in these endeavors. Although some of the women who met with the Site Visit Team feel inspired and empowered, others feel oppressed. Several women in junior and temporary positions, while thrilled with their research and access to incredible infrastructure and collaborators, feel discouraged about their prospects for 'permanent' employment at the Lab. Everyone was pleased that Laboratory leadership was sufficiently interested and concerned to request the site visit.

This report describes findings based on conversations during the Site Visit, the results of an on-line survey of staff scientists and guest scientists, and email input. It offers seven major recommendations for Brookhaven management to consider as it pursues its goal to have a climate that is equally supportive of the success of female and male physicists and other scientists and engineers.

Recommendation 1. BNL should place a priority on attracting and promoting women and under-represented minorities to scientific management positions, and on increasing their presence on advisory and review committees at all levels.

Recommendation 2. Laboratory management must make it absolutely clear in policy and practice that intimidating behaviors are not acceptable, and that employees engaging in these behaviors will be disciplined. To the extent allowed by human resources policy, the consequences to perpetrators should be visible to the Laboratory community. Supervisory staff must be trained and mentored to eradicate hostile behaviors within work groups.

Recommendation 3. Brookhaven should review its training requirements and opportunities for supervisory staff and provide them with the skills needed to help develop members of their team, including women and minorities. Additional training should be offered to help pre-supervisory staff scientists (especially women and minorities) consider and prepare for possible promotion to supervisory roles.

Recommendation 4. Brookhaven should ensure that there is no stigma associated with taking advantage of family-friendly policies. In addition, it should consider additional ways to facilitate transportation needs and other logistics supporting the non-work needs of visitors and guests living on site, including more shuttles to Stony Brook University.

Recommendation 5. Without going so far as to mandate a rigid, centrally managed mentoring program, Brookhaven management should review best practices in other organizations, establish an expectation of effective mentoring, provide training to prospective mentors and mentees, facilitate the establishment of mentoring relationships that cross group and department lines, and provide visible rewards and encouragement for effective mentoring through the performance appraisal process and in other appropriate ways.

Recommendation 6. Laboratory management should review and evaluate the tenure procedures, practices, and outcomes in each department, and implement standards or changes needed to ensure a transparent, fair, and consistent process.

Recommendation 7. The Laboratory should research and adopt or adapt best practices from other research organizations, as well as from exemplary groups within Brookhaven, and share its best practices so others can benefit.

Brookhaven has several noteworthy strengths: widespread enthusiasm about the mission and science; family-friendly policies and infrastructure, including the outstanding day-care center, the Flex-schedule option, and tuition-assistance program; inspiring environment for students from high school to graduate school; a reputation as a generally good place to work; and location on Long Island and proximity to New York City. Concerns include the absence of women in top scientific management and the low representation on advisory committees (both have apparently declined compared with previous years); a highly variable, local-dominated climate for women; low progression of women through the tenure system; and difficulty for individuals without cars to get around (including into New York City).

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Introduction and Background

At the request of the Laboratory Director Sam Aronson, the Committee on the Status of Women in Physics (CSWP) organized and conducted a site visit to Brookhaven National Laboratory (BNL) on June 22-23, 2010. The purpose of the visit was to assess the Laboratory's climate for women in physics and more broadly across the range of science and engineering disciplines at the Laboratory, as well as to provide advice to the Laboratory's leadership on how to improve inclusiveness, retention, recruitment and the presence and advancement of women among scientific/technical personnel and users.

The review team consisted of four female physicists from national laboratories and universities with collective experience in various physics-related fields, accelerators, laboratory and university management, promotion, tenure, and as national facility users at Brookhaven and elsewhere (Appendix 1). Prior to the visit, the team reviewed demographic data on the scientific population of BNL and the results of a recent climate survey (Appendix 3). During the visit, we requested and received additional demographic information and selected human resource policies.

During the visit, the team met with groups consisting of female senior scientists, female junior scientists, female post-doctoral fellows (Research Associates), female professional scientific/engineering staff, female graduate students, supervisors of female and male scientists (ranging from those with one or two direct reports to leaders of ~50-person groups), department heads, female and male scientists, and laboratory leadership (Director, Deputy Director for Science and Technology, and various associate laboratory directors on the scientific and support "sides"). The Site Visit Agenda is provided in Appendix 2. Groups ranged in size from one to about 30. In the case of larger or highly diverse groups, the Committee split, so that the maximum group size did not exceed about 15 Brookhaven participants. An informal reception allowed one-on-one or small-group conversations between individual team members, staff, and guests. Many of the reception attendees also attended one of the larger group sessions. In addition, individuals were invited to provide email or other input to the Committee, and this information has been factored into our impressions and recommendations.

In total, the team interacted with over 120 members of the Brookhaven community during the visit. These individuals included staff, postdocs, guests, and students representing a wide range of disciplines and roles, including physicists, engineers, chemists, biologists, medical personnel, and technicians. Many individuals expressed great enthusiasm for the scientific and technical challenges and opportunities at the lab, but discouragement about the possibility that their career could continue at Brookhaven.

The Review Team would like to thank Director Sam Aronson and Deputy Director Doon Gibbs for their commitment to creating a climate and culture conducive to the success of female physicists, scientists, and engineers and for inviting and supporting the site visit. We are very grateful to Shirley Kendall, the Liaison team (Mei Bai, Eric Johnson, and Lisa Miller), and the staff in the Diversity Office for extensive logistical and administrative support, as well as for their responsiveness in providing information and arranging schedule adjustments and participation in real time during the visit. Finally, we thank all the Brookhaven people—both staff and users—who took the time to share their insights, ideas, concerns, issues, and enthusiasm with us directly or through participation in the on-line survey.

Status and Demographics

Brookhaven is an exciting place for physicists and other scientists and engineers to work. It offers forefront opportunities associated with accelerators, light sources, high-energy and nuclear physics, materials science, nanoscience, life science, and even climate and science policy. As at many national laboratories, physicists work in mid- to large-sized, interdisciplinary teams to advance knowledge, develop technology and instrumentation, and solve important problems.

Female physicists share their male colleagues' passion in these endeavors. Some of the women who met with the Site Visit Team feel inspired and empowered, while others feel oppressed. Several in junior and temporary positions, while thrilled with their research and access to incredible infrastructure and collaborators, feel discouraged about their prospects for 'permanent' employment at the Lab. Everyone was pleased that Laboratory leadership was sufficiently interested and concerned to request the site visit; not all were optimistic about the prospects for follow-up that would make a difference.

The Diversity Office provided the Site Visit Team with tables listing the gender and ethnicity of the scientific/professional staff in M, P, RA, and S classifications as of January 14, 2010. Table 1 presents a summary of the demographics. Overall about 15% of the scientific/engineering workforce is female, while fewer than 4% are members of under-represented minority (URM) racial ethnic groups (Black, Hispanic, and American Indian). The demographics vary considerably across the scientific directorates, with the physics-intensive directorates (nuclear physics, BES, and Light Source) having a lower presence of women than is found in the environmental and life sciences. Overall, BNL's percentages of women and URM in scientific/engineering classifications are low, and the women and URM are mostly in the professional, research associate (post-doctoral), and less senior scientific/engineering classifications.

**Table 1. Brookhaven Scientific/Professional Staff Demographics
(M, P, RA, and S)**

Organization	Total	Female	Under-rep. Minority	Percent Female	Percent URM
NPP Directorate	262	22	11	8.3%	4.2%
BES Directorate	151	22	6	14.6%	3.7%
ELS Directorate	160	51	4	31.9%	2.5%
GARS Directorate	81	5	4	6.2%	4.9%
LS Directorate	100	15	4	15.0%	4.0%
TOTAL	754	115	29	15.2%	3.8%

Among the M (management) positions, there appears to be one woman and no underrepresented minorities. According to the February 15, 2010 BNL Organization Chart, however, there is one scientific URM department head, one non-scientific URM senior manager, and several women in non-scientific management positions. The marked scarcity of women (1/29) in scientific and technical managerial and leadership roles is noted with discouragement by many individuals, who interacted with the visiting team. Many R&D organizations have found that having women and under-represented minorities among the scientific leadership is a major advantage in many respects.

Recommendation 1. BNL should place a priority on attracting and promoting women and under-represented minorities to scientific management positions. In addition, attention should be placed on including significant numbers of women and under-represented minorities on advisory and review committees at all levels. Accountability for gender diversity in management would be enhanced by including first names, rather than just first initials, on organization charts.

Brookhaven leadership requested that the Site Visit Team provide insights into differences between staff and users, trends in attitudes among or toward women scientists over time, and differences between new and veteran staff members. The short site visit and conversations with participants who met with us suggest that there are differences between staff and users and perhaps larger differences between and among staff members in different departments and groups. Generally, veteran staff members are more discouraged and negative than new staff members. Appendix 3, reporting significant differences discerned via the pre-survey, can provide insights into these differences.

Culture and Practice

BNL is a multipurpose laboratory with a long history of distinguished research in a number of areas, including research leading to seven Nobel Prizes. The Laboratory is also home to world-renowned user facilities: RHIC, AGS, Center for Functional Nanomaterials, NSLS, and NSLS-II (under development). Over the past 10 years, the number of postdocs has tripled to over 150, partly as a result of favorable budgetary treatment of these positions. The laboratory clearly has an important stewardship role in training and nurturing these early-career scientists to ensure their success no matter where they find jobs later on, even if outside of the Lab.

The Laboratory's culture and climate result from values and behaviors among the BNL staff and management. A number of scientific women reported experiencing respect, inclusion, and support from their supervisors and male colleagues. In other cases, there was concern that in some groups, postdocs, students, and technical or professional staff were supposed to do a job and not think on their own or take time to attend the many seminars and other intellectually enriching experiences available. If common, such attitudes can quickly quench the capacity for innovation, problem solving, and discovery that requires all minds to be fully engaged and receptive to the best ideas, regardless of who proposes them.

Among the concerns that adversely affect the climate for women scientists are the low percentage of women in most scientific groups, the absence of women in top scientific management, and the low representation of women on BSA's science and technology advisory committees. Compared with previous years, the presence of women in management positions and on advisory groups has reportedly declined. In organizations and professions where women are scarce and are virtually absent in leadership, there is a burden on those in charge to actively invite women's participation explicitly. Without such an invitation, many women do not feel empowered to contribute fully, even though in most cases, no one has told them not to. By actively inviting women to speak in meetings, and by valuing and crediting them for their ideas, Brookhaven can take a giant step in creating an empowering and respectful climate for women scientists to thrive and contribute fully to the mission of the Laboratory.

Some scientific and engineering women reported a somewhat hostile environment, in which aggressive, intimidating language and behavior by male colleagues was tolerated by supervisors and co-workers. This is clearly an issue that Brookhaven must address. The Lab has made a significant investment in all its employees, and a hostile environment can lead to lower productivity by affected individuals, be they women or men.

Recommendation 2. Laboratory management must make it absolutely clear in policy and practice that intimidating behaviors are not acceptable, and that employees engaging in these behaviors will be disciplined. To the extent allowed by personnel policy, the consequences to perpetrators should be visible to the Laboratory community. Supervisory staff must be trained and mentored to eradicate hostile behaviors within work groups.

There is a perception among the scientific women across disciplines that the lab is “going backwards” with respect to inclusion of women, because the numbers of senior women and women in management has gone down. In a very few cases some women scientists were either hired into supervisory positions or strongly encouraged to move into management. It was noted that when Brookhaven Science Associates (BSA) took over management of the lab in 1997, there were some female ALDs, whereas today there are none. Moreover, there is a perception in some parts of the Lab that successful women scientists are being derailed, for example by being pushed onto the professional track or told to find another job. Supervisors of early-career women thought that budget constraints were the main barriers to retaining female and male postdocs and converting them into staff scientists, which is one of the pathways by which scientific staff members are recruited to the Lab. Salaries for the S-1 grade are almost double that of postdocs, and the favorable internal accounting arrangements for postdoctoral positions make budgeting to convert a postdoc into a staff member extremely challenging.

Division directors and supervisors as a whole appeared to be satisfied with their jobs. Complaints centered on issues, such as difficulties in attracting or keeping young people due to lack of funding, the stress induced by the performance-appraisal process, and the escalation of safety and security rules. Beam-line scientists noted a decline in their job satisfaction: they used to be “kings” of their beam lines, and they now feel like “slaves” to the users. Neither extreme is optimal.

Recommendation 3. Brookhaven should review its training requirements and opportunities for supervisory staff and provide them with the skills needed to help develop members of their team, including women and minorities. Additional training should be offered to help pre-supervisory staff scientists (especially women and minorities) consider and prepare for possible promotion to supervisory roles.

Work-Life Balance and Family Friendliness

Brookhaven implemented several “family-friendly” policies about two years ago. The vast majority of individuals, who interacted with the visiting team, were familiar with the policies, which include flex time, delayed tenure, and a child care center. Several supervisors and staff reported that BNL is very flexible in making informal arrangements, for example, to accommodate an employee with a sick child or a new baby. A few employees perceived that the family-friendly policies are rarely used formally. Others felt that the policies are not applied uniformly across the Lab. Some staff found maternity leave to be insufficient or experienced inflexibility in scheduling alternate work hours or accommodating a carpool. The day care center was viewed as being wonderful and of high quality, but lacking in sufficient capacity and flexibility. Several post docs reported being unable to enroll their child due to the lengthy wait list (in some cases, longer than their appointment term), and part-time employees expressed a desire to have the option to enroll a child part time.

The panel heard that some staff had informally and unofficially given the Family-Friendly Policy Committee (renamed the Work/Life Balance Committee in June 2010) an unflattering nickname that implied that it consisted of angry women. While it is impossible to control a negative ‘grapevine,’ this nicknaming and perception are unfortunate, because they disparage family-friendly policies and create an uncomfortable climate for people (frequently women), who are interested in using them. To overcome this disparagement, management should be alert to the potential, and ensure that there can be no misunderstanding about the importance of the effort and management’s support thereof. Clearly all staff, both women and men, and many visitors and users can and do benefit from such policies. The Lab should train supervisors and ensure that all staff members have full access to the policies.

The isolated rural/suburban location of the laboratory makes it difficult to live without a car. Even the site is sufficiently large that visitors/users staying in on-site housing have a long walk to reach their work sites. Thus, a car really helps, even on-site. Cafeteria hours are limited, and suggestions were made that the Lab consider the addition of a convenience store on site to improve access to groceries when the cafeteria is closed. The Brookhaven shuttle bus has a limited schedule (8:30 am – 5 pm) and does not provide convenient connections with trains to New York City.

Moreover, there is very limited transportation between Stony Brook University and the Lab. An expanded shuttle bus schedule could allow greater opportunities for guests and visitors, especially students and postdocs, to take advantage of cultural, social, and shopping opportunities on Long Island. An opinion poll could be used to gauge interest. The Association of Students and Postdocs has regular weekly meetings but apparently

these are not widely attended. Women especially can experience social isolation if they are not interested in or included in networking activities, such as golf and basketball, that typically involve males. The Lab could take steps to create more opportunities for encouraging and building social networks among the staff, guests, and students. The Lab could demonstrate greater support of networking efforts by BWIS by having Lab management attend these functions, which would surely then attract more junior and senior staff.

The Site Visit Team was unable to evaluate the sustainability of the family-friendly practices. Some are well established, but others are undermined by practices in local work groups, and many could be eroded if the Laboratory Director and leadership were less supportive and committed. Attention to how they are used by the staff and guests, and continuous reinforcement will be key to their sustainability. Additional family friendly policies to ease work-life balance and facilitate retention were suggested by many people who met with the Site Visit Team. These ideas include the possibility for extended, European-style maternity leave, more child care, more college tuition assistance or discounts for employees and dependents, and ensuring there is no stigma associated with taking advantage of the family-friendly policies, e.g. flex time and delayed tenure.

Recommendation 4. Brookhaven should ensure that there is no stigma associated with taking advantage of family-friendly policies. In addition, it should consider additional ways to facilitate transportation needs and other logistics supporting the non-work needs of visitors and guests living on site, including more shuttles to Stony Brook University.

Mentoring

The goal of mentoring is to support and accelerate an individual's professional progress and growth. Mentors serve as role models, advisors, sponsors, counselors, and friends. There are multiple models of mentoring and various degrees of formality in mentoring systems. For example, the tripartite method uses the supervisor, a close colleague experiencing similar issues, and an outside peer to provide perspective. Individuals can serve multiple roles as both mentor and mentee. Mentoring relationships based on respect and trust where both mentee and mentor value the time and the interaction tend to be most successful. These types of relationships arise more frequently in *ad hoc* or voluntary mentoring than in highly structured systems, where a central office assigns mentors to early career staff.

At Brookhaven, mentoring of postdocs and early career staff is uneven and variable, and mentoring was a common topic, mentioned frequently by supervisory and non-supervisory personnel alike. Laboratory management was comfortable discussing mentoring and aware of how important it can be to the development of junior scientific staff and the climate in the work groups. Some supervisors admitted that in departments without a mentoring program, staff members must be aggressive to succeed. Women who are timid or not actively self-promoting can easily be left behind or deprived of the speaking opportunities and small leadership roles essential to develop skills and reputation.

Supervisors recognized a general lack of training in how to mentor and nurture young scientists to help them succeed. When gender or minority status is a factor, moreover, there can be awkwardness in the mentoring or supervisory relationship. Note that it is an excellent practice to provide postdocs and early career scientists with two mentors, who are not their supervisors, with at least one of them being in a different group or department, to provide independent views, not distorted by workgroup politics.

Recommendation 5. Without going so far as to mandate a rigid, centrally managed mentoring program, Brookhaven management should review best practices in other organizations, establish an expectation of effective mentoring, provide training to prospective mentors and mentees, facilitate the establishment of mentoring relationships that cross group and department lines, and provide visible rewards and encouragement for effective mentoring through the performance appraisal process and in other appropriate ways.

The Tenure System

Brookhaven is distinctive among national laboratories in the existence of a strong tenure system, modeled on those found in universities. This system has a high-stakes promotion step, and tenured scientific personnel have fairly robust job security, unusual in national laboratories.

Several significant concerns were raised about the tenure system at Brookhaven. Though modeled roughly on the university system of promotions and tenure, the Lab's system has issues that lead to problems of implementation as well as perception. As described to the Site Visit Team, the possible ranks for scientific personnel are S-1 (assistant), S-2 (associate), S-4 (scientist with tenure), S-5 (senior scientist with tenure), and S-3, a "continuing" position with a 5-year appointment for which there exists no academic equivalent.

The functional differences between job requirements and responsibilities for the tenured and continuing appointments do not seem to be very great. We were told that the tenured scientists were on a marginally higher pay scale, were eligible to sit on the council that reviews tenure cases, would be less likely to be laid off during times of economic hardship, and would have six months notice rather than the three months given untenured scientists should such layoffs occur. However, there was a strong perception among many with continuing appointments that the existence of the tenure system created a “caste system” with those on continuing appointments being “second-class citizens.” There seem to be very few tenured women at BNL, with great variability among the different departments (for example, Physics has two tenured women, while Biology, with a higher percentage of female scientific staff and many with significant seniority, reportedly has none).

Because the tenure system is a source of concern for so many of the Brookhaven scientists, who communicated with us, and because there are so few tenured women, we tried to understand the system in some depth. Despite extensive questioning, it was difficult to understand all of the details of the tenure procedure, because employees were often vague about these details and because there were inconsistent beliefs about the process. Some details did emerge with some frequency. All assistant scientists have the potential to be considered for tenure. Whether an individual is brought up for tenure depends on funding and the recommendation of the department chair and a small committee of tenured scientists. In the case of a positive decision the candidate will be brought up for tenure in five years. Otherwise the candidate might be given a continuing appointment. After this critical juncture, the tenure process conforms more closely to the process common at universities: review by a full departmental tenured-staff review committee, followed by approval by the Associate Laboratory Director, a Lab-wide council of tenured scientists, the Laboratory Director, the Science and Technology Committee, and ultimately the BSA Board.

The concerns identified in the course of this site visit regarding the tenure process are not necessarily specific to women, but some issues have the potential to affect women disproportionately. As mentioned above, the most common complaint was that the tenure system led to the perception of a two-tier system, even though the nominal differences between tenured and continuing appointments are not great. Below are listed a number of issues brought up during discussions of the tenure system. It is important to keep in mind that many of these issues are very dependent on the particular department; however, given the small numbers of women in some of the departments, it is impossible to maintain confidentiality while identifying the affected departments. Rather, we recommend that procedures in all departments be evaluated to ensure a fair and consistent tenure policy:

- Some women felt that they were actively encouraged to leave before a tenure decision was made; others felt that they were not given full consideration when the initial decision to bring the candidate up for tenure was made.
- According to some employees, the career progression at BNL is “ambiguous.” There is a lack of transparency as to what is actually valued by the department and by the administration. In some cases, supervisors do not adequately explain retention and promotion policies.
- There is a perception that one must be the protégé of a long-term employee in order to succeed, thus putting women and underrepresented minorities at a particular disadvantage as they might be less likely to have formed such relationships.
- There are very few tenured women to serve as examples to the junior women.
- There are very few tenured minority scientists to serve as examples to their junior counterparts.
- Some employees believe that tenure cases might fail (or some employees might not be brought up for tenure) due to the financial status of the particular research group, rather than because of the merits of the candidate.
- Given the great variability in expected levels of service, particularly within the user facilities, tenure criteria might not be uniform across divisions.

In addition to the concerns identified by Brookhaven employees, we find that the tenure system suffers from a significant flaw in that the ‘entry gate’ into the tenure review process is controlled by a very small group (the department chair and a small committee), which can decide whether or not a given employee will be brought up for tenure. At universities, the decision to apply for tenure and the responsibility for assembling the associated documentation rests with the candidate for tenure.

Several people recommended abolishing the tenure system at BNL altogether, and this is certainly worth consideration. If the system is preserved, we recommend that management strive to make the process as fair and uniform as possible by establishing clear and consistent requirements and making these requirements clear and transparent to middle management and scientific personnel. These requirements should be flexible enough to allow for the widely varying missions of the departments that include user-oriented work as well as more research-oriented departments. We highly recommend that the initial decision as to whether to bring a candidate up for tenure be made by a committee of senior scientists, preferably including women, rather than leaving this decision in the hands of one individual. Finally, it might be constructive to review recent tenure decisions to ensure that the system is robust and implemented fairly, both across departments and for men and women alike.

Recommendation 6. Laboratory management should review and evaluate the tenure procedures, practices, and outcomes in each department, and implement standards or changes needed to ensure a transparent, fair, and consistent process.

Summary and Conclusions

Brookhaven is scientifically and technically a very exciting place. Among Brookhaven's noteworthy strengths are the widespread enthusiasm about the mission and science; significant family-friendly policies and infrastructure including the outstanding day care center, the Flex schedule option, and tuition-assistance program; and the wonderful environment for students from high-school to graduate school. The Laboratory has a reputation as a generally desirable place to work. Its location on Long Island in close proximity to New York City is considered a definite plus.

The workplace environment for female scientists and engineers is highly variable among departments and groups, with some reportedly being excellent, while others are very challenging and seem to tolerate inappropriate workplace behaviors. Women appear less likely than men to make it through the tenure system, and many more are in the less-prestigious P(professional)-type positions than in S(scientific)-type positions, despite having strong scientific credentials. Despite the location and proximity to New York City, limited transportation options accessible to those without cars makes the Lab feel geographically isolated and the city seem inaccessible. This isolation is likely to be more problematic for underrepresented groups than for others.

Looking forward, both scientifically and with respect to its climate for women (and underrepresented minorities), Brookhaven has many opportunities. The fuller engagement of women and underrepresented minorities in the Lab's scientific and engineering endeavors will expand and strengthen the idea base available to advance the state of the art.

Examples of resources Brookhaven could tap include those developed through the National Science Foundation's ADVANCE program (e.g. Hunter College, University of Wisconsin's WISELI, University of Michigan, and Virginia Tech) to help recognize and counteract established, often hidden, biases and barriers that disadvantage women and minorities. Argonne National Laboratory and the American Physical Society have separately pioneered professional development workshops on skills for surviving (and even thriving) as women scientists and engineers. The APS/CSWP has resources on helping women develop negotiation and career-advancement skills. For mentoring, the

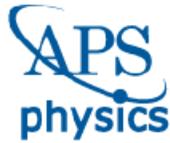
National Resource Council, American Association for the Advancement of Science, and the Leadership Alliance (headquartered at Brown University) have excellent materials, some of which are available free on line. The National Post Doctoral Association has numerous resources on mentoring, as well as other topics to accelerate the professional development of early-career scientists, so that they are not just workers, but are gaining the skills to be successful in their next appointment, whether at Brookhaven or elsewhere. The energies and ideas of BWIS could be engaged to help Laboratory management find and incorporate some of these exemplary practices.

Other opportunities include evaluating and understanding whether women scientists leave Brookhaven disproportionately, compared with men; becoming as outstanding in managing the two-body problem at the post-doctoral level as at the management level; and providing proactive support and assistance for international visitors and employees to solve visa issues and become settled on Long Island.

Finally the Laboratory has the opportunity to align its systems and practices better to incentivize desired behaviors and outcomes, while avoiding unintentional consequences. One potentially problematic example is the current budgetary policy regarding post-doctoral positions. This policy strongly encourages the hiring of postdocs, which is great, and the Lab has significantly expanded the population of early-career scientists at Brookhaven. Depleting this population is not desirable, however, the policy appears to make it very difficult for groups and departments to convert the top postdocs into staff scientists, because the financial/budgetary impacts are huge. Moreover, when hiring of postdocs and early-career scientists is done position by position, the institution misses the opportunity to combine searches and create a large and diverse pool, from which top candidates matched to the needs of specific projects can be selected. One possible strategy would be to advertise broadly for postdocs and early-career scientists one to three times per year, to create the candidate pool, and to select finalists from this pool for specific positions as they open. Using such a process, moreover, Laboratory management would have improved oversight of and opportunity to shape the diversity of the scientific and engineering workforce to advantage.

Recommendation 7. The Laboratory should research and adopt or adapt best practices from other research organizations, as well as from exemplary groups within Brookhaven, and share its best practices so others can benefit.

Appendix 1 Site Visit Team



Climate for Women in Physics Site Visit Brookhaven National Lab June 22-23, 2010

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Appendix 2 Site Visit Agenda

APS Climate Assessment for Women Site Visit Schedule

Monday, June 21, 2010 - Evening

Arrival of Committee on Status of Women in Physics (CSWP) Review Team members – Hotel check-in

Evening Pre-Meeting of Review Team

All meetings will take place at Berkner Hall (Bldg. 488 – in Room A, B, C or D).

Tuesday, June 22, 2010 – DAY ONE

Time:	Event:	Attendees:
7:30am – 8:45am	Executive Breakfast and Initial Meeting with Management ROOM A	Lab Director Deputy Director, S&T Other Scientific Business Leaders (ALDs)
9:00am – 9:45am	BNL APS Liaison Team Meeting ROOM C	Erik Johnson, Lisa Miller and Mei Bai
9:45am – 10:00am	BREAK	
10:00am – 11:00am	Meet with Scientific Staff (Group 1) ROOM C	Female Senior Scientists (S3, S4, S5)
11:00am – 12:00noon	Meet with Scientific Staff (Group 2) ROOM B	Female Research Associates & Junior Scientists
12:00noon – 1:00pm	LUNCH BWIS ROOM A	Brookhaven Women in Science Leadership and members
1:00pm – 2:00pm	Meet with Scientific Supervisors (Group 3) ROOM B	Supervisors of early-career women scientists
2:00pm – 3:00pm	Meet with Women Research Associates ROOM B	Research Associates (Post-Docs)
3:00pm – 3:15pm	BREAK	
3:15pm – 4:15pm	Meet with Scientific Staff (Group 4) ROOM B	Supervisors, who do not necessarily work with early career women scientists
4:15pm – 5:15pm	APS Executive Session ROOM D	APS Team Only
5:30pm – 7:00pm	Reception LOBBY-Berkner Hall	All Scientific Staff and Management

Wednesday, June 23, 2010 – DAY TWO

Time:	Event:	Attendees:
7:30am – 8:45am	Executive Breakfast ROOM A	Department Chairs
9:00am – 10:00am	Meet with Scientific Staff (Group 5) ROOM B	OPEN To All Scientific Staff
10:00am – 10:15am	BREAK	
10:15am – 11:15am	Meet with Physicists ROOM B	Open to all physicists.
11:15am – 12:15noon	Meet with Women Graduate Students ROOM D	
11:15am – 12:15noon	Meet with Women Professional Staff ROOM B	
12:15pm - 2:00pm	LUNCH – EXECUTIVE SESSION ROOM A	APS Team Only
2:00pm – 2:45 pm	Closeout with Management ROOM A	Lab Director Deputy Director, S&T Other Scientific Business Leaders (ALDs) BWIS leadership
2:45pm	Adjourn	

Appendix 3 Summary of Pre-Visit Climate Survey

Prior to the Site Visit, and in accordance with the American Physical Society's (APS) procedure for climate visits, a climate survey was administered at Brookhaven. The survey was completed on line, and the responses were analyzed and summarized by the American Institute of Physics (AIP), which prepared a report dated June 16, 2010, co-authored by Arnell Ephraim, Rachel Ivie, and Susan White.

An email announcement about the survey was sent to Brookhaven employees and guests on May 11, 2010, the link was sent on May 13, 2010, followed by a reminder on May 26, 2010. The survey closed on June 6, 2010. As a result of confusion about how guests were to respond, a clarification was sent out on May 26th, and the 68 guest responses received prior to the clarification were not included in the analysis. As is the case for all climate surveys, APS made a commitment to respondents not to provide institutional or department management with a copy of the report or the surveys.

Because the Team believes that Brookhaven leaders and managers will be able to respond constructively to the experiences and perceptions of its employees and users, only with information about the survey, we have pasted the two pages of summary below, and summarize the findings here. Note that about 30 pages of comments were received from BNL employees, and about 11 pages were received from guests. About 60% of the comments from guests came from females, while from employees only about a third of the comments were from females.

Survey Respondent Demographics

	physics	chem	Bio	Engineering	Missing	Total
Employ	171	36	38	48	2	295
Guests	47	7	15	9	3	81
Total	218	43	53	57	5	376
Employ	58.0%	12.2%	12.9%	16.3%	0.7%	100.0%
Guests	58.0%	8.6%	18.5%	11.1%	3.7%	100.0%
Total	58.0%	11.4%	14.1%	15.2%	1.3%	100.0%
Years at lab	<5	5 to 9	10 to 19	20 to 29	Over 30	Total
	88	49	57	39	62	295
percent	29.8%	16.6%	19.3%	13.2%	21.0%	100.0%
Job Class	Scientist	Tech	Post doc	Student	Other	Total
	222	9	36	6	20	293
percent	75.3%	3.1%	12.2%	2.0%	6.8%	
Supervisory	34.6%	Have children	30.2%	Married	80.1%	

Survey responses were received and analyzed from 295 employees (22% women) and 81 guests (27% women). The Table shows the demographics of the survey respondents. Overall, 58% of the respondents self identified as physicists, 11% as chemists, 14% as biologists, 15% as engineers, and 1% did not provide discipline information. Among employees, there was a slightly higher percentage of chemists and engineers, and a slightly lower percentage of biologists than were found among the guests. Physicists were exactly 58% of both populations. Among the employees, 35% held supervisory positions, 75% were classified as scientists or engineers and an additional 12% were post docs; 30% had been at BNL for less than 5 years, while 53% had been at BNL for more than 10 years.

The overwhelming impression from the surveys is that BNL is an exciting and positive workplace. Nearly 80% of employees and over 90% of guests find the BNL climate welcoming, with over 90% of BNL employees and 80% of guests participating in lab-sponsored activities of some kind. Nearly everyone (96%) feels safe at BNL during off hours, but only 86% percent of women who had been at the lab for over 10 years do. About 87% find the workplace environment 'friendly;' only 10% find it 'threatening;' and 61% find it 'encourages self confidence.' About 20% of guests and of female employees, 'feel like outsiders,' while only 10% of male employees do. Female employees who have been at the lab for more than 10 years had significantly less favorable views than average. Most graduate students report being mentored adequately.

About 70% of employees report having experienced discouragement at BNL. Sources of discouragement for employees include job duties (50%), job opportunities (25%), interaction with other employees (35%), interaction with upper management (60% for those at the lab more than 10 years, about 25% for those on staff for less than 10 years), interaction with supervisor (40%), and workplace climate (55% of females and under 40% of males). Compensation and benefits do not appear to be a major source of discouragement for the majority of employees. Over 90% of males with more than 10 years of professional experience had been promoted at BNL, while less than 75% of similarly experienced females had.

The next two pages summarize the statistically significant differences between women and men and between employees and guests revealed through the surveys. This feedback can help Brookhaven leaders and managers in their efforts to make the laboratory's climate and culture increasingly conducive to the success of its mission and people, regardless of their demographics.

Summary

There are two main foci in this report: (1) a comparison between guests and employees at Brookhaven National Lab (sex differences in the two groups are also examined) and (2) a comparison among groups of employees (classified by sex and by years of experience as a professional scientist). When the differences between (or among) groups is statistically significant, we include a graph which depicts the differences.

Differences between Guests' and Employees' Perceptions about BNL

- Guests are more likely to perceive the climate to be more welcoming than are employees.
- Employees are more likely to participate in BNL events and activities.
- Female and male guests have different perceptions regarding the adequacy of office space and the adequacy of the lab equipment.
- Employees and guests have different perceptions regarding the adequacy of the computer equipment and fairness in the allocation of lab equipment.
- Female employees' responses are very similar to guest responses when asked about feeling like an outsider at the lab; male employee responses are quite different.
- Guests are more likely than employees to perceive the environment at BNL to be rigid or inflexible.
- Female guests are more likely than male guests and employees to find job duties and job opportunities to be a source of discouragement.
- Employees are more likely to find interactions with upper management to be a source of discouragement.
- Male and female guests have very different perceptions regarding interactions with one's supervisor at BNL.
- Females are more likely than males to find the climate in the workplace to be a source of discouragement.

Differences among Employees' Perceptions at BNL

- Female employees with more than ten years of experience as professional scientists ...
 - are least likely to find the climate to be welcoming or friendly.
 - are more likely to report that the environment is rigid or inflexible.
 - are less likely to feel safe at BNL during nights or weekends.
 - are less likely to discuss job duties with coworkers.
 - are less likely to report that their supervisor treats them with respect.
 - are less likely to believe they can take short-term or maternity leave without jeopardizing their career opportunities at BNL.
- Female employees with more professional experience are more likely to find the environment more threatening; for male employees, the reverse is true, as those with more professional experience are less likely to find the workplace threatening.
- Employees with more experience ...
 - are more likely to participate in BNL-sponsored activities.
 - are less likely to discuss job opportunities or compensation with coworkers.
 - discuss job duties, their personal lives, their benefits, and family obligations with their supervisor less often than those with less experience.
 - with their supervisors, these employees discuss their interactions with upper management more often than those with less experience.
 - are less likely to agree that their supervisor encourages them in their career goals than those with less experience.
 - are less likely to report that their current job provides opportunities for advancement than those with less experience.
 - are more likely to report knowing the gender discrimination and sexual harassment policies than those with less experience.
- Male employees ...
 - discuss job opportunities with their supervisors less often than female employees.
 - are more likely to have been promoted during their time at BNL than female employees.
 - are less likely to find the climate in the workplace to be a source of discouragement than female employees.