



View From the Chair

David Ernst, Vanderbilt University and Jefferson Laboratory

When first elected to FIP, I was most confused by the way that international matters were handled by the APS. From the outside, the situation looks not only confusing but redundant. After working with FIP for several years and also serving on the Committee on International Scientific Affairs (CISA), I think I have come to understand the system and also believe that it makes a great deal of sense. Part of this belief comes from the CISA Goals Statement which appears elsewhere in this newsletter. By being a participant in writing this document, not only do you get the opportunity to express your thoughts on how things are really working, but also get to push to have things worded so as to support how you think things should work. Thus I would not view myself as an unprejudiced person in this matter. To follow is my personal view of how international affairs at the APS operates. This is not a report of official policy. The attached CISA statement is an official view from CISA which has been presented to the Executive Committee and Executive Council. The bylaw changes that match this statement are in the process of being adopted. First thing to realize is that there are four different groups at the APS which are actively engaged in international matters. The first, in pecking order, is the "presidential line." This consists of the President, President-Elect, Vice President, and Past President. This group is clearly involved in all significant activities of the APS. The second group is the Division of International Affairs. Irving Lerch, the Director of International Affairs, leads this group. Also significant are Michele Irwin, Irving's right-hand person, and I would include here Judy Franz, Irving's boss. This is the APS staff who have to do the large majority of the real work. They must also provide much of the glue that keeps the work coordinated. The third group is CISA and the fourth is FIP.

From the outside, having two committees seems redundant. The first thing to realize is that FIP is not a committee, it is a Forum. It really is you, the people who are receiving this newsletter. FIP does have a committee, the Executive Committee, but that committee represents the FIP membership. CISA is an

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official committee of the APS. It has standing before the Executive Council. It can propose changes in bylaws, it can propose policy and programs that are, when approved, official APS activities. Its actions thus are official actions of the APS. It also receives support from the International Division. Irving and Michele put in considerable time and effort on projects proposed by CISA. On the other hand FIP is a self-assembled group of APS members interested in international matters. FIP receives relatively little support from the International Division. As a member organization, FIP relies on volunteer work. It has several duties: arrange for the election of its officers, provide for communication among its members (e-mail notices and a newsletter), and solicit and recommend FIP members for fellowship. The situation is that FIP pretty much has a free reign on what it does. It does what the membership of FIP and the FIP Executive Committee want to do. This also means that FIP is not constrained by the rest of APS. Its statements are not official statements of the APS. Hopefully, it remains responsible and does not go off independently. Being a child of the sixties, I can, however, envision situations where it would and probably should strike out boldly on its own. As a member of the APS and of FIP, individuals, including myself, are inclined to ask the International Division, i.e. Irving

Leuch, for assistance with our great ideas to further international physics. It is clear that Irving and staff can not possibly become involved in every idea that comes forth, no matter how good the ideas. There is one notable exception. This has to do with visas. Irving and staff have accumulated an expertise on visas and seem to be generally open to helping if there is a problem. In fact, if you know you will be involved in a situation where there are new or complicated restrictions, it would be wise to get advice in advance. Sometimes it is only a matter of using the correct words and you can avoid some of the restrictive policies - policies which you might unnecessarily and inappropriately run up against. If you do have ideas on how to further international physics, nominate yourself (or have a friend nominate you) to be a member of the FIP Executive Committee. Get your friends to join FIP and vote for you (we need members). Once on FIP, you will have access to APS officers and a path for input to CISA. Especially if you volunteer your own time, you may find that APS might well appreciate your insights and become a part of your ideas. How well does this system work? I think quite well. The cooperation and coordination between these groups depends on the desire of each to work with the others. There have been, in the past, APS Presidents who were very interested in international matters and did not bother to consult with CISA, the membership, and, my guess, had the staff at APS running hard to keep up with them. This has not been the case recently. The presidential line in recent years has had a strong interest in international affairs and has worked closely and cooperatively with the International Division and CISA and FIP. The present bylaws specify that the vice chair, chair, and past chair of the FIP Executive Committee also serve on CISA. This is a relatively new setup and, I think, a very good one. This has kept the information flow between the two groups quite high and their efforts coordinated and mutually supportive. Finally, let me give you an example of how this all works. The APS has a program, joint with the IITP in Trieste, to furnish journals for free or at greatly reduced cost on CD to universities in Africa that could not otherwise afford them. The IITP has identified the qualified institutions and provides shipping. The APS provides the CDs, and, when connectivity becomes adequate, internet access to APS journals. A suggestion to extend this program to Latin America emerged from FIP, led by James Vary. FIP is not the organization to implement such a proposal since the proposal involves official APS policy and APS money. FIP took the proposal to CISA, who took it to the APS officials. This involves the International Division, Publications, and Finance. Both FIP and CISA are working with the Federation of Latin American Physical Societies (FeLaSoFi) and the Latin American Center for Physics - Mexico (CLAF-M), both of which happen to be represented on CISA or the FIP Executive Committee, to help start such a program if it is possible. The good communication and the great cooperation between all of these organizations, each playing its appropriate role, is what makes something like this possible.

Fellowship Nominations

The Forum on International Physics can sponsor the election to fellowship of a member of the American Physical Society. The Forum is anxious to recognize our foreign members who meet the criteria for fellowship. The deadline for nominations for FIP is April 1, 2002. Complete instructions can be found at:

<http://www.aps.org/fellowship/fellinfo.html>

The procedure is for the nominator to submit an official nomination form signed by himself and one other member of the APS, together with a vita and a number of supporting letters to:

**Executive Officer
American Physical Society
One Physics Ellipse
College Park MD 20740-3844
Attn.: Fellowship Program**

It is very important that you support your colleagues and nominate them for fellowship in APS.



Jorge Pullin: 2001 APS Bouchet Award

from *The Hispanic Physicist, The Newsletter of the National Society of Hispanic Physicists, January 2001*

The 2001 Bouchet award from the American Physical Society will go this year to Jorge Pullin from Pennsylvania State University. The APS award was established in 1994 by the Committee on Minorities (funded by the Research Corporation) to promote the participation of under-represented minorities in physics by identifying and recognizing a distinguished minority physicist who has made significant contributions to physics research. Professor Pullin received this distinction for his studies of gravitational wave propagation and quantum theory of gravity and for his effort to increase diversity in the field of physics as a founding member of the National Society of Hispanic

Physicists. Dr. Pullin, professor of physics and associate director of Penn State's Center for Gravitational Physics and Geometry, obtained his Ph.D. from the Instituto Balseiro, in Argentina in 1989. Held postdoctoral positions at Syracuse University (1989-1991) and the University of Utah (1991-1993), and joined Penn State in 1993. He received the Alfred P. Sloan and John S. Guggenheim fellowships, the Jack H. Keuffel award for Research (University of Utah and the NSF Career award).

Dr. Pullin is on the editorial board of the *New Journal of Physics* and *Classical Quantum Gravity* and is the editor of "Matters of Gravity". He is the chairman of the scientific organizing committee of the International Conference on General Relativity and Gravitation to be held this year in South Africa, and a member of the executive board of the LIGO research community.

For his contributions to the study of gravitational wave propagation and quantum theory of gravity and for his effort to increase diversity in the field of physics as a founding member of the National Society of Hispanic Physicists.

His research has covered many aspects of gravitational physics, concentration recently on two main problems: the quantization of general relativity using canonical methods and the study of the gravitational waves produced in the collision of two black holes. His contributions to gravitational physics and general relativity have received praise and recognition in areas as diverse as exact solutions of Einstein's field equations, gravitational wave generation and loop representation in

non-perturbative quantum gravity. His work with Richard Price from the University of Utah (the close limit approximation) has been influential in a revival of perturbation techniques to study sources of gravitational radiation like collisions of black

holes.

As a Hispanic-American Professor Pullin has dedicated much effort to attract minorities to study physics. He participated in the founding meeting of the National Society of Hispanic Physicists that took place in May of 1995 in Austin, Texas. He has attended several meetings of SASNAS, the Society for the Advancement of Chicanos and Native Americans in Science, with the main purpose of recruiting Hispanics and other minorities for his graduate program. Many of the graduate students that work or have worked under his supervision were or are Hispanics and African-Americans.

The National Society of Hispanic Physicists feels very proud that one of its active members and founders has received such honor.

Henry R. Glyde: 2001 Wheatley Award



intellectual resources to establish new regional research centers.

Henry R. Glyde was born in Alberta, Canada and received his B.Sc. in Physics at the University of Alberta in 1960 and a D.Phil in Physics at Oxford, England as a Rhodes Scholar in 1964. After 5 years of post doctoral research in Europe he joined Atomic Energy of Canada Ltd. in 1969. He served as a project officer with the International Development Research

The 2001 John Wheatley Award went to Henry R. Glyde, University of Delaware, for his enduring commitment and multifaceted contributions to the development of physics in Thailand, which include innovative creation of scientific links between North American research universities and Chulalongkorn University, inspiring collaboration with leading Thai physicists, and the marshaling of financial and

Centre of Canada in Thailand in 1971-72 where his connections with Thailand, Chulalongkorn University and the program recognized by the Wheatley Award began. In 1975, Dr. Glyde moved to the University of Ottawa where a formal link with Chulalongkorn University was established in 1979. He became Chair and Professor of Physics at the University of Delaware in 1982 and except for a period as Chair of Physics at the University of Alberta 1989-91 has been at Delaware ever since. Dr. Glyde is a Fellow of the APS (1988), has served as President of the Canadian Institute of Neutron Scattering (1989-91), chaired the committee that founded the Neutron Scattering Society of American (1992), and is currently on its executive committee. He has been a guest scientist at the Institut Laue Langevin, France, regularly since 1975, served as chair of the R&D advisory panel to AECL, and has assisted broadly in developing neutron scattering in the USA, his current field of research.



Scientific Freedom and National Security

Irving A. Lerch, Office of International Affairs, The American Physical Society
(based on a presentation at the APS Meeting in April, 2000, in Long Beach, CA)

Steven Aftergood commenting on the public pronouncements of government officials and politicians which lay the blame for security breaches in the national weapons labs on obstreperous and naive scientists reported:

... the story of nuclear weapons development begins with scientific secrecy. At the dawn of the nuclear age in 1939, before the government or the military ever got involved in nuclear research, scientists led by Leo Szilard initiated their own nuclear secrecy policy which they imposed on themselves.

But the self-imposed security system of the physicists was soon taken over by government administrators whose proscriptions threatened to fragment and disperse this small commune of experts. Szilard complained to Vannever Bush about the onerous attempt to exclude foreign-born scientists from positions of leadership and succeeded in preventing implementation.

Oppenheimer, ever the realist, came up with a compromise amenable to the exigencies of a world conflict: the Los Alamos fortress. It succeeded brilliantly in that Germany and Japan never discovered what the Allies were up to. But in retrospect, it was seen as a failure because a future enemy penetrated the *sanctum sanctorum* of nuclear secrets. It is fashionable now to focus on the failure and to forget altogether the overarching success.

The next fifty years bore witness to a succession of reorganizations and political interventions which sought unsuccessfully to deal with the central dichotomy of defense related basic research: security and scientific openness. The role of the defense laboratories became more diffuse as weapons development and basic science were placed into uneasy proximity. The mission of the defense laboratories became fragmented, uncertain, subject to varying visions and political interference. Lines of authority were dissipated in the proliferation of regional field offices amidst an undertow of political meddling. The degree of disarray within Department of Energy management was criticized in 1999 by an investigative panel of the President's Intelligence Advisory Board chaired by former Senator Warren Rudman.

The haphazard assortment of agencies and missions folded into DOE has become so confusing as to become a running joke within the institution.

In 1995, a peculiar, still unexplained episode, sparked political convulsions that continue to reverberate. A Chinese national approached the CIA with official Chinese intelligence documents classified "secret." Contained in the documents was highly sensitive information pertaining to the W-88

Trident D-5 warhead. While it was determined after analysis that this "walk-in" was directed by Chinese intelligence, CIA and US counterintelligence officials concluded that the information was genuine and resulted from a leak within the Department of Energy. The arrest of Wen Ho Lee and the disruption of the labs followed in due course.

The background for these events had been presaged in 1998 when the House of Representatives empaneled a Select Committee to make inquiries on US national security and the impact of Chinese espionage. The conclusions were dramatic:

1) The People's Republic of China (PRC) has stolen design information on the United States' most advanced thermonuclear weapons.

2) The Select Committee judges that the PRC's next generation of thermonuclear weapons, currently under development, will exploit elements of stolen U.S. design information.

3) PRC penetration of our national weapons laboratories spans at least the past several decades and almost certainly continues today.

The Cox Committee hammered at the vigor and scope of alleged Chinese espionage in the US. Many scientists within and outside the Department saw the more extreme allegations as an unwarranted attack on the DoE visitors program which was considered as vital to the Department's mission:

Many PRC scientists were educated in the United States and retain valuable contacts in the U.S. research and business community who can be exploited for technology transfer.

The PRC also tries to identify ethnic Chinese in the United States who have access to sensitive information, and sometimes is able to enlist their cooperation in illegal technology or information transfers.

The suggestion that Chinese-Americans were easily vulnerable to recruitment as agents was seen as casting an indiscriminate and wide net giving license to the counterintelligence community to target Chinese-American citizens.

Of the 38 recommendations made by the Cox Committee, one deserves special attention. Recommendation 37 constituted an overly restrictive view of "sensitive" technology and "deemed exports" that could have effectively blocked most international scientific exchange.

While there are only three weapons labs: Los Alamos in New Mexico, Sandia nearby and Lawrence Livermore in California; many other labs are engaged—to varying degree—in classified research. Thus, disentangling national security from pure and applied research is not easy. Complicating matters is the close and inextricable association between non-



weapons and civilian research and the growing importance of the research enterprise abroad.

The three weapons labs, alone, in 1998 played host to 6,398 foreign visitors or assignees with stays varying from 30 days to two years. Among these visitors, 1,824 were from sensitive countries. In addition, Department employees made 5,799 trips to foreign labs or scientific conferences and of these 1,814 were trips to sensitive countries. This exchange was viewed as critical for the 70-75% of the Department's work which was unclassified and which was directed to enhance the effectiveness of both basic science and weapons-related science. Specifically, exchanges in support of Russian warhead decommissioning, fissile material controls and stockpile stewardship are seen as vital to US national security interests.

Recruitment, retention and morale are becoming serious problems at all the labs—not simply the weapons labs (see the Baker-Hamilton report). Affiliated universities also suffer as access becomes restrained.

It is important to enumerate the dangers to the national interest inherent in an uninformed imposition of measures intended to safeguard security at any cost:

- *Stifling of vital international exchange*
- *Impairing lab productivity and morale*
- *Imposition of cosmetic solutions while ignoring the real threat*
- *Denigration standards of justice and equal protection*
- *Sacrificing the future*

And as security considerations become the preeminent political and administrative focus, steps are proposed and implemented which threaten to further denigrate the scientific enterprise:

- *New classifications for material already in the public domain*
- *Special identity badges singling out foreign nationals*
- *New restrictions on access to unclassified facilities*
- *Attempts to place nonclassified facilities under restrictive controls*
- *Increased dependence on procedures of doubtful value—i.e., polygraph testing*
- *New and more draconian classification procedures that threaten to restrict the distribution of scientific information*
- *Complex management schemes that further dissipate lines of responsibility and authority*

A panel led by former Senator Warren Rudman undertook a less political and more functional view and unlike the Cox Select Committee, the Rudman Panel was able to put into context the importance of the Foreign Visitor's Assignments Program and its significance to the work of the laboratories:

The Foreign Visitors' and Assignments Program has been and should continue to be a valuable contribution to the scientific and

technological progress of the nation.

But most important, the Rudman panel noted that the real security problems were being submerged in hyperbole which prevented the implementation of solutions.

There was no justification for assuming a security breach at Los Alamos as the source of the document, no reason to focus on a Chinese-American as a suspect for espionage. The single-minded pursuit of just one theory may have obscured many other explanations and leads.

The National Academy Complex instituted a self-financed study to look at the conflict between security and scientific openness from the perspective of the scientific community:

... past experience suggests that overly strict action with respect to foreign nationals is neither necessary nor appropriate. Indeed, a response that focuses on foreign nationals may result in a misallocation of effort at best and a highly damaging reaction—without locating the true source of the espionage—at worst.

The souring climate within the Congress, the Administration and the public has mirrored a concomitant rise in instruments to impede scientific visits to and from the United States. These include:

- *Visa Denials*
- *Treasury Department Licenses for Travel to Cuba*
- *Permission for Travel of US Government Scientists to Sensitive Countries*

Yet the utter dependence of the domestic scientific enterprise on foreign students and scholars requires a coherent, rational immigration and naturalization regime. Yet visa denials based on ill-founded and shifting bases bedevil the system.

The international standard for free exchange is stated in Article 5 of the International Council for Science (ICSU) statutes and requires that all meetings sponsored by international scientific unions comply.

Almost 50 years ago, Robert Oppenheimer, the scientific director of the Manhattan Project, became the first victim of a virulent inquisition into security breaches at the lab. Someone had to be blamed for the Russian acquisition of the bomb as well as Oppenheimer's well-known resistance to developing the "Super."

Dr. Lee was led away by FBI agents in December 1999, under indictment for mishandling classified information with intent to injure the United States. While there is no evidence to support allegations of espionage, and the case ultimately collapsed, Dr. Lee was, nevertheless, denied bail for nine months and was held in extreme circumstances on the basis of overheated claims and "erroneous" testimony by government investigators. It is clear that in their zeal to bar the gates to our enemies, the government prosecution may have taken liberties with justice.



CISA's Goals in International Relations

Introduction by David Ernst

In September, 1999, officers of the Committee on International Scientific Affairs (CISA) and the Forum on International Physics (FIP) met with Jim Langer (then APS President-Elect), George Trilling (then Vice President), Executive Officer Judy Franz and the Director of International Affairs, Irving Lerch, in order to discuss how to better integrate CISA (a nine member statutory Committee) and also the Forum (with some 2,600 members) with APS planning, execution and evaluation of international scientific activities.

We were looking for a plan that would more effectively provide APS leadership with advice and assistance drawing upon the expertise and efforts of members of the Committee and the Forum, in the spirit of volunteerism that has been a valuable asset of our Society throughout its history.

At Jim Langer's suggestion, the CISA embarked on formulation of a Statement which encapsulates its view of what APS aims and activities should be in the international arena, and what the Committee's role should be in helping to formulate plans, advising in their execution, and monitoring continuity and effectiveness. Over the ensuing year, with constructive advice from Irving Lerch, Judy Franz and other officers of the Society, we developed the Statement on the Society's Role in International Relations which has been before the Executive Board and was presented to the APS Council on 19 November 2000. The Statement follows below.

A concomitant revision of APS Bylaws pertaining to CISA has been transmitted to Council through the Committee on Constitution and Bylaws. This version went through its First Reading at the 19 November Council meeting; there were no objections.

I. Preamble

Scientific enterprises have taken on an increasingly international character during the past few decades. Even among the most advanced nations, international collaborations have become necessary to fund, operate, and extract maximum scientific benefit from major projects and facilities. In addition, scientific breakthroughs in many areas of physics hinge on the ability to make measurements at location around the globe and hence on international partnerships among both scientists and governments. For both highly developed and less affluent developing regions, strengthening science and technology is understood to be a condition for economic progress and improved quality of life. Thus, international collaboration benefits science, scientists and their fellow citizens. In addition, international scientific collaboration can also function as a powerful factor in easing political tensions. One example is the interaction of physicists from the West and the Soviet Union during the cold-war period, and another is the common language of the international treaty for scientific research that governs the entire continent of Antarctica, keeps it free of territorial tensions and prohibits military activity. Hence, "Science for Peace" can be a valuable by-product of international scientific collaboration.

The importance of the American Physical Society's role in providing liaison to physicists worldwide has been well-recognized, and many pertinent activities have been pursued quite actively over the past decades. The Society has become a major international instrument for diffusing and promoting physics, as indicated, for example, by the fact that over two-thirds of the submissions to the *Physical Review* and *Letters* now originate abroad (with Western Europe contributing more manuscripts than the United States). The fact that over 22% of all APS members reside outside of the United States, and that

this fraction is growing, is another clear indication of the international aspects of the Society (see the characteristics of the membership, as analyzed in the 1998 APS Non-Resident Membership Survey by R.Y. Chui and R. Czujko).

A variety of ongoing efforts is directed toward fulfilling the perceived APS responsibilities in fostering international scientific relations. Nevertheless, certain questions arise about the efficacy of the overall involvement, for example:

- 1) Are the long-range goals of the APS in the international arena sufficiently well-defined? Is there a strategy for attaining them?
- 2) Is there coherence among the various APS activities related to international science?
- 3) Is the Society membership, through suitable committees and forums, adequately engaged in the planning and realization of APS international goals and activities?
- 4) Are there any clear organizational changes that could provide a more effective realization of APS goals?

2. Goals

In Article II of the APS Constitution, the Objective of the Society is stated as follows: "In the firm belief that an understanding of the nature of the physical universe will be of benefit for all humanity, the Society shall have as its objective the advancement and diffusion of knowledge of physics."

We believe that this objective implies that the Society should develop, support, and advance international activities for the benefit of the global physics community, without regard to political or other extraneous factors.

A. In Science



a. Strengthen interaction among researchers and institutions in different regions of the world, and particularly within the developing countries, where even a relatively small effort could provide great impact on science. We note that (1) of the scientific enterprises of the US depends upon the talent of visitors and immigrants, and (2) the contributions of colleagues from around the world materially benefit all partners in a research collaboration.

b. Promote changes in government policies, procedures and regulations that hinder international collaboration on fundamental scientific research projects (e.g., ease travel restrictions, minimize import duties on equipment, charges on visas, and other impediments.)

c. Encourage and assist organization of international meetings and workshops to help exchange new approaches and techniques for the study of emerging topics.

d. Endorse and, where desirable, help to promote international scientific enterprises, particularly when such initiatives are championed by individuals or groups associated with the APS, and whose goals involve the development of specific international scientific projects.

e. Take advantage of the unique position of the APS to further extend worldwide access of physicists to scientific information and its exchange through journals, both hard copy and on-line, and improve internet availability and other means of extending interaction among physicists. (We note that in cooperation with UNESCO, NATO, NSF and other organizations, the APS organized Internet Workshops in the past in Kiev, St. Petersburg, and Accra. However, in 1996 the Presidential Line made a decision for the APS to withdraw from these efforts. The issue may well be worth reexamining.)

f. Help initiate and strengthen collaboration among physical societies in different regions of the world.

B. Education

Extend collaboration with AAPT and other organization, as deemed appropriate. The Society should help improve physics education in school and universities in the United States and other countries, through teacher training, outreach activities, exchange scholarships, and by helping to make books, research equipment and educational and training material available worldwide, but especially in developing countries. The APS Education and Outreach Office bears this responsibility; development of an international component of this program would appear to be desirable.

C. Human Rights

Support free expression and the full exercise of civic and human rights, particularly when any violations prevent the proper conduct of scientific activities by any of our colleagues world wide, because successful science depends on the free exchange of ideas and open inquiry

The APS has a special Committee on the International Freedom of Scientists (CIFS) that is charged with keeping a watchful eye on these matters; the Committee on International

Scientific Affairs (CISA) will assist on such issues as appropriate.

3. Achieving APS Goals

The current international activities are spearheaded by the Society's Office of International Affairs, in collaboration with Society membership through the Committee on International Scientific Affairs (CISA), the Forum on International Physics (FIP) and other bodies, all under guidance of the Executive Board and Council. The Director of the APS Office of International Affairs is the primary executor of the programs of the Society, with specific goals often influenced and set by the interests of the members of the Presidential Line.

The FIP body has a large constituency, and therefore substantial visibility within the APS community. It organizes regular symposia at major APS meetings, and can rely on a large pool of members for input on relevant questions and for volunteerism.

CISA is a standing committee of the APS, with its members and Chair appointed by the Society's President. The general (and very broad) charge to the Committee involves the monitoring of the international scientific scene; the offering of advice and preparation of documentation and recommendations for actions by the Director of International Affairs, APS officers and Council; the fostering of interactions with physical societies of other nations, as well as between individual American physicists and colleagues around the world.

The traditionally strong Presidential interest in setting the short-term objectives of the APS in international affairs has brought about important progress in specific topical areas but it has also led to abrupt changes in direction with changes in leadership. As a result, sustained efforts in the topical areas have at times been hindered and, equally importantly, long-term goals of the APS have received only varying attention. CISA is an excellent vehicle for monitoring balance between new initiatives and ongoing activities. The Committee will work with the Director of International Affairs, the officers of the Society and those other relevant partners as may be needed from time to time (other committees, fora, etc.) and, if deemed appropriate, bring specific proposals or issues before Council. However, CISA can exercise this function effectively only with active encouragement and support of the Executive Board and Council.

CISA would like to undertake its function in partnership with the Director of International Affairs, the Executive Board and Council. In developing this partnership it would be most helpful to CISA if the Executive Board and Council would respond to CISA's recommendations and provide a mechanism for further interaction when necessary. The sense of the current CISA membership is that this activity should be at the core of CISA's charge and would serve to justify the continued existence of the Committee.



Volunteers Sought for APS Initiative on Inter-American Cooperation in Physics

David Ernst

The APS jointly through its Office of International Affairs, the APS Committee on International Scientific Affairs (CISA), and the Forum on International Physics (FIP) is presently pursuing an initiative designed to promote increased Inter-American cooperation in physics.

As one component of the overall Inter-American physics cooperation effort, the APS is currently seeking to identify volunteers who are interested in making contacts and establishing collaborations and working relationships with physicists in Latin America and the Caribbean. A list of such volunteers is now being compiled that will be available as a Directory both on the APS Web site and in a hard-copy form that will be directly distributed to physics departments in Latin America and the Caribbean.

The purpose of the new directory is to provide initial contact information that can be used by Latin American and Caribbean physicists for the purpose of identifying potential

lecturers, research collaborators, teachers, students, etc. who would be willing to visit and work for varying periods of time in a host country. Naturally, any details involving partial or full support of travel and living expenses in the host country would be arranged on an individual basis directly between the prospective visitors and their hosts without any involvement on the part of the APS. Additionally, while there is an emphasis on identifying individuals with Spanish or Portuguese language skills, individuals who do not possess such skills but who are personally motivated to interact with Latin American and Caribbean physicists are still encouraged to complete and submit the form for inclusion in the Directory.

All APS members who are interested in being included in this directory of potential scientific collaborators with Latin American and Caribbean counterparts are encouraged to add their names to the directory by going to <http://www.aps.org/instaff/collab.html> and enrolling electronically.

Undergraduate Summer Research Experience in Beijing

Shang-Fen Ren, Department of Physics, Illinois State University

Two Illinois State University (ISU) Physics undergraduate students, Brian Mavity, a senior, and Josh Matsko, a junior, joined me for a three-week summer research experience in Beijing, China in the summer of 1999. The Division of International Programs and the Division of Material Science of NSF provided support under the Research Experience for Undergraduates (REU) program. The two students and I collaborated on research with scientists and graduate students from the Semiconductor Institute of the Chinese Academy of Science (SICAS) and scientists and students from the Department of Physics at Peking University (PKU). SICAS and PKU provided the research facilities and arranged the research activities for myself and the ISU students. Two SICAS graduate students worked in pairs with each of the ISU students. While in Beijing, the ISU students stayed in the guesthouse of Peking University. They made friends and, during their leisure time, explored Beijing and Chinese culture.

Motivation

There are many benefits in a program which both enhances the students' research experience and exposes them to a different culture. The main benefit, of course, is to enhance the

students' research experience. With the support from the National Science Foundation, the Research Corporation, and Illinois State University, I have initiated and maintained an active research program on semiconductor nanostructures at Illinois State University since 1994. About 20 undergraduate students in the Department of Physics have actively participated in this program from 1995 to 2000. The participation in a research environment greatly enhances the student's experience of learning physics and further encourages them to pursue a career in a related field. The student retention rate in my research group is extremely high. All of my previous/present research students have finished or are continuing a B.S. in physics. However, my research program has some limitations, as would be the situation at many institutions. Because Illinois State University is primarily an undergraduate institution, and I am the only faculty member in the Department of Physics working in this research area, the students have limited exposure to this broad-ranged and fast growing research field. For example, there is no growth facilities for semiconductor nanostructures at ISU, and the students can hardly gain hands-on experimental experience in this research area. I work hard to improve the situation, including inviting speakers from other institutions and taking students to American Physical Society



meetings. Student summer research experience is one important way to enhance and to broaden my students' educational experience.

A second important aspect of this program is to promote the students' international experience. As an immigrant myself, I think that it is very important for American students to gain international experience. The students were provided the opportunity to learn about another culture, to discuss with people their own age from another country research, course work, economics, human rights, and many other issues. These experiences increase the students' self-confidence and build their self-discipline and enhance the student's ability to cope with diversity and adapt to new culture. Such experience gained by students in the early stage of their career will help them for their future participation in a more globally-oriented workforce. It helps prepare the students to take a leading role in the new global competition, which benefits both the students and themselves and the United States.

Experience

Weekdays were spent doing our research at the SICAS. The Semiconductor Institute not only provided us with all the research facilities but also arranged a lecture by a scientist for about an hour in the afternoon. We also had several opportunities to visit the National Research Centers and Labs at the Semiconductor Institute, Physics Institute, and Peking University. We shared a large office with several Chinese scientists and graduate students. Two graduate students, De-Yu Lu and Hai-Bin Wu, worked together with the two US students to discuss physics, to work on computer programs, to do graphics, etc. This was extremely helpful both for the research and for understanding each others culture. Exchange works best for students who are about the same age and who share many common interests.

Our students made excellent progress on their research work. Josh was working on an article titled "Phonon Modes in InAs/AlSb Superlattices with Switched Atomic Layers at Interfaces." He had finished most of the calculations and written a draft while at ISU. With help from Haibin Wu, Josh nearly finished the work while in Beijing. Shortly after returning, the paper was submitted and it is now published by the Journal of Undergraduate Research in Physics in 2000. Brian Mavity was writing his own computer program to calculate phonon modes in a three dimensional QDs with a Valance Force Field Model. This project is quite challenging for an undergraduate student. With some help from Deyu Lu, Brian made impressive progress while in Beijing, which won him praise from scientists at the Semiconductor Institute who were working on related topics.

The students also had a wonderful cultural experience in China.

The students stayed at Shao Yuan, the guest house of Peking University, during their entire stay in Beijing. This environment is very pleasant for our students, because it is easy for them to make friends and even explored Beijing and China by themselves on some evenings and weekends. Over the weekends, we did a lot of sight seeing in the neighboring areas around Beijing.

Accomplishments

Our major accomplishments include the following: First, ISU students had the opportunity to meet and discuss their research projects with leading scientists whose research articles are used by students as references. They gained experience and first hand knowledge in the research area of semiconductors physics, an area with important applications in future supercomputers, artificial intelligence, communication and information processing. Both students made excellent progress on their own research projects, as we mentioned above. The best evidence of our accomplishments are the reports from the two students which can be found in our web page.

Summary and Future Plan

This summer research experience has provided ISU students an exceptional research and cultural experience. For these students, this was their first experience of going abroad and visiting leading edge research institutions. Both students made excellent progress on their on-going research projects which they started at ISU and continued after they returned. The international experience gained by students in the early stage of their career has broadened the students' perspective on and prepare them for their future participation in a more globally-oriented workforce. Supported by Division of International Programs of the National Science Foundation, we will continue to take ISU Physics undergraduates to China for summer research in the next three years. I recommend that others think about combining a summer research experience for undergraduates with international research collaborations; the combination provides a unique experience both professionally and culturally for the students. You can contact the Division of International Programs of the National Science Foundation for funding information, and contact Dr. William Chang (wychang@nsf.gov, (703)292-8704) for programs in the east Asia and Pacific areas.

Please visit our web site at <http://lilt.ilstu.edu/intphy/china> to see more details of our activities in Beijing and to see some pictures the students took. If you are interested in more information, please contact me at the Department of Physics at Illinois State University (ren@silicon.phy.ilstu.edu). ☉



The 2001 Sponsored Fellows

Drummond, Peter David

University of Queensland

For pioneering theoretical studies of quantum noise in nonlinear optical processes, including superfluorescence, optical bistability, parametric amplification and oscillation, fiber-optical solitons, proposed tests of quantum correlations, and the positive-P representation.

Eremenko, Victor Valentine

Inst. For Low Temperature Physics

For pioneering works in magneto-optics of antiferromagnets, discovery of the "mixed" and "intermediate" states of antiferromagnets near magnetic phase transitions, photoinduced persistent phenomena in magnetic insulators & high-Tc superconductors; and his international activities as the editor of "Low Temperature" journal of AIP, an affiliated scholar of ISU, and co-director of IITAP program.

Ng, Tai-Kai

Hong Kong University of Sci. & Tech.

For his work on the Coulomb effects in a quantum dot, leading to the prediction of conductance enhancement due to the Kondo resonance.

Palacios, Javier Tejada

Universidad de Barcelona

For original experimental contributions to the studies of macroscopic quantum tunneling in magnetic

Pichler, Goran

University of Zagreb

For pioneering studies of atomic line broadening and intermetallic molecules while fostering international ties through an extensive collaborative network.

Turbineer, Alexander V.

Nuclear Science Institute (ICE)

For the discovery and analysis of quasi-exact solvable Schrödinger equations.

Prieto, Pedro Antonio

Universidad del Valle

For forefront research in the Josephson effect in high temperature superconductors and outstanding contributions to the development of physics in Latin America.

Rozmus, Wojciech

University of Alberta

For his outstanding research in the theory and modeling of laser-plasma ICP relevant interactions, in particular in non-local transport, strongly-coupled plasmas, and nonlinear interactions between laser-plasma instabilities.

Salin, Dominique

Laboratoire FAST

For significant contributions in the development of experimental methods and lattice gas simulations that led to improved understanding of flows in Hele-Shaw cells and porous media and of suspensions.

Takami, Michio

University of Electrocommunications

For the first demonstration of optically detected MW-IR double resonance and his beautiful and innovative uses of lasers in the spectroscopy of atoms, molecules, and van der Waals molecules in free jets and in bulk liquid helium.

Violini, Galileo

UNESCO - Iran Office

For his extensive contributions to physics especially through developing new international programs, capacity building and vigorously promoting international cooperation between developed and developing countries.

Zigler, Arie

Hebrew University

In recognition of his fundamental experimental contributions to the field of ultra high intensity laser matter interactions.



International REU Program at NSF

David Ernst

The National Science Foundation has a program titled "International Research Experiences for Undergraduates (International REU)." Its official description is:

NSF's Research Experiences for Undergraduates (REU) Program supports the active participation of students in research, either in connection with individual NSF-supported research projects, or through REU site grants. International Programs Division encourages current grantees and new applicants to include the participation of undergraduate students in research activities in most regions of the world. Funds can be requested for participant support costs (including stipends, international travel and subsistence) and other expenses related to the international activity. Principal Investigators of established US-based REU sites are also invited to propose developmental visits to

sites are also invited to propose developmental visits to countries to meet with foreign colleagues and make arrangements for REU site activities for US students.

The East Asia Pacific Program of the International Division of NSF also offers support for adding an East Asian component to the Graduate Teaching Fellows in K-12 Education (GK-12) program, the Integrative Graduate Education and Research Training (IGERT) program, and for NSF Centers. More information can be found at www.nsf.gov/sbe/int/eap/priority.htm.

Elsewhere in this newsletter you will find a description of a very successful International REU program run by Shang-Fen Ren on Illinois State University.

FIP Membership

FIP Travel Grants provide partial travel support for a physicist working in the U.S. who is a member of the American Physical Society to give a presentation at an international conference

Wheatly Award honors and recognizes the dedication of physicists who have made outstanding contributions to the development of physics in countries of the third world, by working with local physicists in research or teaching.

Fellowship nominations can be made through FIP.

Journal/Book Exchange allows for the donation of books and journals to other countries.

How to Become a Member

To become a member of the Forum on International Physics sign up on the web at:

<http://www.aps.org/memb/unitapp.html>

Requests for membership can be emailed to:

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or by contacting Trish Lettieri at:

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