Forum on International Physics
The American Physical Society
March 1995

VIEW FROM THE CHAIR

J. Thomas Ratchford, *FIP Chair*

Physics is perhaps the most international of all human endeavors. Physicists naturally think internationally, and their closest research collaborators are as likely to be across the world as across the hall.

The American Physical Society is an international organization. 8783 of its members are located in 256 countries outside the United States as of this writing. International concerns of the APS membership are varied, and range from human rights to access to unique research facilities. APS meetings often look like a mini-U.N. session, and APS journals are populated with papers with authors (and co-authors) from all continents.

Perhaps because international activities of physicists are so commonplace, formal internationally-oriented physics organizations and programs are not of special interest to most APS members. For most physicists, international issues are low-saliency – you might say they run a mile wide and a half-inch deep. Nevertheless, APS does have formal international organizations and programs of its own.

APS International Activities

The wiring diagram is not too complicated.

- The Committee on International Scientific Affairs (CISA) is a committee of the APS Council. It has authority to recommend actions, and has APS staff support.
- The APS Office of International Scientific Affairs, headed by Irving Lerch, has a modest complement of staff and carries out programs. Its budget is on the order of $400 thousand annually from the APS budget, with a like amount of grant funds in a typical year.
- The Forum on International Physics (FIP) is a volunteer group within the APS with elected officers. It has no staff and a budget of a few thousand dollars. In a typical year it will organize a couple of sessions for the March and/or April meetings, help in organizing regionally-oriented international meetings, and participate in programs to assist physics in developing countries (in part through providing modest stipends for American physicists to participate in relevant meetings and through programs that provide used research equipment for physicists).
- Other APS organizations, such as the Committee on International Freedom of Scientists (CIFS) that have international dimensions to their interests.

Role of the Forum

First, let's see what the Forum on International Physics is not. It is not the "international arm" of the APS with responsibilities for policy making and programs. The only way it can influence policy is through selling ideas to the Council through CISA.

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Also in this Issue

The Forum does not relate in any meaningful way to APS international program activities. This is the responsibility of the Office of International Scientific Affairs, which receives guidance from the Council.

The APS has several organizations, such as CIFS, the Panel on Public Affairs, and the Forum on Physics and Society, that involve APS members who are committed strongly to some fundamental concern. The concern may be to protect human rights or advance arms control or relate to some other strongly held belief. Our Forum, as noted above, attracts those whose commitment is a mile wide and a half-inch deep. I find myself in that category, supporting increased international activities in the APS because it makes sense for physics, and because in the long run it will probably help solve human rights and arms control problems a lot more effectively than another APS Council resolution or other symbolic acts in these areas.

Rationalizing APS Relationships

If the Forum is to contribute in some kind of optimum relationship to the advancement of physics and a more effective APS, the boundary conditions governing its interactions with related committees, forums and offices should be better defined. This is a Council matter. The Council recognizes the dangers inherent in the allocating of policy-making authority to sub-units of APS. It would be a mistake to do so, for many reasons. It does seem reasonable, however, that a substantial fraction of the APS agenda in international-related areas reflect the input of the members of the Forum on International Physics.

The comparative advantage APS Forums have is that potentially they have a lot of free labor available from very talented and knowledgeable APS members. These members are, however, usually very busy individuals and have neither the time nor institutional knowledge of APS to coordinate actions effectively within the APS family. APS staff must be involved if there is to be a "seamless web" of interactions between the diverse APS organizations respecting international issues and activities.

A Modest Proposal

If the typical Forum member's interests ran a mile wide and two inches deep, a lot of additional talent might be tapped for APS international activities. How can this be done? Some possibilities are given below, to conclude this view from the chair:

- Ask Forum members (and as a second step, have the Forum ask other APS members) what they would like APS to do in the international arena. This must be done electronically (because of budget) and individually (i.e., e-mail, not the Web).
- Carry out a bottom-up, individual member-based review of existing APS international activities and programs. APS spends, on the order, $10 of each member's dues on these programs. Are they the ones the members really want, or do they care one way or the other? Again, this is an e-mail project.
- Use the very limited Forum budget to initiate or evaluate activities the members want. This means minimizing or even abolishing the expenses of Executive Committee meetings and other "governance" activities.
- Cast wide nets for ideas for meetings-related international events, such as invited speakers and sessions at APS meetings. The Forum can also add peer review of the proposals and ideas so generated, again effectuated electronically.
- Convert this newsletter entirely to electronic format, using e-mail and fax for distribution. A notice in the APS News (and/or the APS dues notice) could allow those without electronic access to request a hard copy.
- Establish ties to groups of physicists with varied international interests, such as those composed of Chinese, Korean, and Indian-American members, as well as to foreign physical societies.
- Take the initiative in publicizing and supporting (or opposing) actions of other APS entities that affect international cooperation in positive or negative ways. This would be done more effectively if there were efficient cross-forum and cross-committee coordination, effectuated at least in part by APS staff.

The Forum on International Physics can play a more important role in APS and in international scientific affairs. To do so, it must take advantage of new technologies and of member interests in post-cold war issues. The Forum must better ascertain concerns and facilitate communication about them up and down the APS chain. It must reach out to other physicists and physical societies in other countries. I stand ready to help my successors in these initiatives.

FIP Programs

FIP Travel Grants

Marleigh Sheaff, *University of Wisconsin*

Each year the Forum on International Physics solicits applications for FIP Travel Grants. Applications for this coming conference year, which starts May 1, 1996 and ends April 30, 1997, must be received by June 1. Because funds for this program are very limited, the maximum grant that can be provided for any conference is $1000. This is to provide at least 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. Over the last several years, a number of these travel grants have been given to major international conferences and schools in both Latin America and Eastern Europe.

This year, a $1000 travel grant was awarded to the Fifth Workshop on Particles and Fields and Fifth Latin American Workshop on the Phenomenology of Fundamental Interactions, Puebla, Mexico, 29 October - 3 November, 1995. Professor Miguel Perez, Chairman of the Division of Particles and Fields of the Mexican Physical Society, was the main organizer of this joint workshop. There were 150 participants, 40 of them from abroad. All the Latin American countries with groups working in high energy physics were represented. Because of the tremendous success of this event, the Latin American Symposium on High Energy Physics will be organized in conjunction with the VII Mexican School on Particles and Fields in Merida next fall (October 30 through November 6, 1996). Future symposia are planned for Colombia (1997) and Brazil (1998).

The request for an FIP travel grant must be made by the conference organizer to the FIP Travel Secretary, Marleigh Sheaff, in time to meet the June 1 deadline. It can be sent to:

Dr. Marleigh Sheaff
Physics Dept., University of Wisconsin
1150 University Ave.
Madison, WI 53706
USA
sheaff@wishep.physics.wisc.edu

Wheatley Award

Roy Rubinstein, *Fermilab*

The purpose of the APS Wheatley Award is to honor and recognize 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. It was established in 1991 with the support of the Forum on International Physics and is endowed by gifts from Biomagnetic Technologies and IBM, and by individual donations in memory of John Wheatley. The APS Forum on International Physics, whose predecessor initiated the award, notes that it is given to a physicist, generally from a developed country, who, at personal or professional cost, goes to a less developed country and promotes significant physics there, as John Wheatley did in Argentina.

This year's recipient of the Wheatley Award is Professor Galileo Violini of Italy – until 1987 at the University of Rome and currently at the University of Calabria in Cosenza, Italy. In the late 1970's, Violini took an interest in the development of physics in the Andean countries of South America, and was instrumental in proposing an international center for experimental and applied physics research in Columbia; he (and others) realized that such an institute would be a prerequisite to technological development in the region.

In 1981, the first organizational activities were taken to found a physics center, and Centro Internacional de Fisica (CIF) came into existence in Bogota, Columbia in 1985. Violini has been the driving force for the founding and growth of this center. CIF has organized some one hundred courses and workshops. Its staff and university scientists now have a program in research biophysics; there are microprocessor and biotechnical laboratories, and projects are in preparation in other areas including collaboration with industry. Throughout the existence of CIF, Violini has been either the Executive or Alternate Director, spending several months each year in Bogota while continuing to carry out his teaching duties in Italy.

Violini, in his acceptance speech at the Washington meeting of the American Physical Society, stated, "The recognition I am receiving today stimulates me to commit myself to pursue these ideals further. At present, I am involved in an European-Community

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program of support to El Salvador, hopefully as successfully as what I did in Columbia. El Salvador comes from a complicated period of its history and therefore constitutes a laboratory for the linkage of science, education, and peace. I also hope that this recognition for a work which only constitutes a drop in the sea of the needs of the Third World will be an indirect source of support to the infinitely many more projects of that type."

The citation for the 1995 Wheatley Award to Galileo Violini is "for his leadership in the founding and directing of Centro Internacional de Fisica in Bogota, Columbia, an institution which furthers physics collaboration and experimental research in the Andean Region."

The FIP welcomes nominations for the 1997 John Wheatley Award. Nominations should include a cover letter, a current resume and letters of support sent directly to Jorge Morfín (Fermilab, MS 220, Batavia, IL 60510; jorge@fnal.gov). The award deadline is June 1, 1996. Nominations are open to colleagues of all nationalities, but the award will not be given to a person for work in his or her own country. Nominations are active for three years.

Fellowships

We extend our congratulations to the new APS fellows, elected through the FIP, who are listed below.

Bhatnagar, Ved Prakash, U. K.

For significant contributions to the understanding of both theory and experiment of tokamak reactor-relevant fast-wave antenna design, heating and current drive in the ion-cyclotron range of frequencies.

Brand, Helmut Rainer, University of Bayreuth, Germany

For his elucidation of novel phenomena in driven complex condensed matter systems, and for his extraordinary success in motivating quantitative experiments relevant to his theoretical work.

Crompton, Robert Woodhouse, Australian National University

For his extended and penetrating analysis and use of the swarm method for studying the behavior of slow electrons in gases, and his tireless work for improving physics in Australia.

de la Cruz, Francisco, Centro Atomico Bariloche, Argentina

For his contributions to our understanding of the vortex state in the High Tc superconductors and no less importantly for his impact on our community as an exceptional teacher of young scientists.

Haines, Malcolm Golby, Imperial College, U. K.

For his leadership of a research group at Imperial College Group and his major contributions to Z-pinches, theta pinches, cusp confinement, inertial confinement and magnetic fields, and stability theory.

Hakonen, Pertti J., Helsinki University of Technology, Finland

For his experimental investigations on vortex structures in superfluid 3He and studies of nuclear ordering in metals at positive and negative sub-nanokelvin temperatures.

Heinrich, Bretislav Victor, Simon Fraser University, Canada

For the elucidation of loss in ferromagnetic resonance in metals; for the invention of ferromagnetic an tiresonance; for adapting molecular beam epitaxy to studies of exchange interactions and anisotropies in the highest quality ultra thin magnetic films.

Imbusch, George Frances, University College, Ireland

For his contributions to our understanding of the static and dynamical processes which affect the optically excited states of luminescent materials.

Kalmus, Peter I.P., Queen Mary & Westfield College, U. K.

For his many contributions to experimental particle physics, to teaching, to international cooperation in science and to the public understanding of physics.

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Now is the time to nominate FIP members for fellowships. Nomination procedures are posted on the World Wide Web, in the APS Home Page [http://www.aps.org/fellowship/fellinfo.html]. Nomination forms are available online. They may also be obtained by writing to:

Dr. Praveen Chaudhari
T.J. Watson Research Center IBM
P.O. Box 218
Yorktown Heights, N.Y. 10598
ATTN: Fellowship Program

Kato Yoshiaki, Osaka University, Japan

For development of beam smoothing techniques and high power lasers and demonstration of their effectiveness for irradiation uniformity improvement and plasma instability suppression; and for his contributions to x-ray lasers.

Lahiri, Syamal Kumar, Nanyang Technological University, Singapore

For his pioneering contributions in elucidating stress relaxation properties of thin films and in the development of thin film materials for the study and application of high quality Josephson tunnel junctions.

Sapoval, Bernard, Ecole Polytechnique, France

For his outstanding work, on semiconductors, on disordered systems and fractals – diffusion fronts, interfaces in electrochemistry and catalysis, vibration modes of fractal drums; and for his leadership in fostering scientific collaborations worldwide.

Wiersma, Douwe Alle, University of Groningen, The Netherlands

For his outstanding contributions to chemical physics, non-linear spectroscopy and ultrafast dynamics of complex molecular systems.

Equipment Exchange

The FIP equipment donation bulletin board has been transferred to a new host at the University of Alabama, Tuscaloosa Computer Center. From this a message is sent out daily (assuming that there has been at least one submission that day) to all subscribers. We are in dire need of donations or "long term loans" of equipment.

To subscribe send the message SUBSCRIBE FIPEQUIP YOURFIRSTNAME YOURLASTNAME to LISTSERV@UA1VM.UA.EDU. You will receive a message giving you further instructions. Note that if you were a subscriber to the old system your account has already been transferred and you need not re-subscribe. Please sent comments to:

Laszlo Baksay
lbaksay@ua1vm.ua.edu
Phone: (205) 348-6066
Fax: (205) 348-9792

Journal/Book Exchange

Sergio Ulloa has a FIP list of about 120 willing donors of books and a list of 400 who want them. There are tax advantages to book, journal, and equipment donations and this is being explored with the APS. There is now a World Wide Web home page, http://www.phy.ohiou.edu/~FIP/FIP.html, that lists the available books and journals.

FIP Secretary/Treasurer Report

Charles M. Falco, *University of Arizona*

In my role as Treasurer, I'm pleased to report that after beginning two fiscal years in a row with a negative balance in our accounts, July 1995 saw our finances back on track. The fiscal year ending June 30, 1995 found the FIP with a positive $3,845 balance, compared with a $504 deficit a year earlier, and a $3,153 deficit a year before that.

Revenue from dues and APS sub-unit allocation based on total FIP membership generated $17,632 for the 7/94 through 6/95 fiscal year, with a new APS formula contributing to the increase in forum funding over the previous year. At the end of December 1994, FIP had 6,546 members. However, whereas in previous years APS members could join a number of Fora at no additional expense, this year a surcharge was placed on multiple Fora memberships. As a result, as of November 1995 FIP membership plunged to 2,064 (821 new members; 5,308 dropped or lapsed). Decreases in membership for both APS and FIP were predicted in the January 1995 newsletter, however, such a major decrease in FIP membership was not foreseen. While in December 1994 FIP was ranked the largest sub-unit in APS, one year later our membership was the lowest of the four Fora. This was the result of the lowest numbers of new members joining the FIP, as well as the largest number of lapsed members. In comparison, the Forum on Education received 1,687 new members, the Forum on History of Physics 1,154, and the Forum of Physics in Society 1,551 new members. No doubt, both the APS dues increase, as well as the imposition of this additional charge for membership beyond a certain number of society units contributed significantly to membership decline.

Obviously, the drop in membership this year affects our financial standing considerably and bears significant consideration in future spending decisions. While this presents an austere financial picture in the short term, it still is a significant improvement in terms of the negative account balance of the previous two years. Certainly, serious discussion and plans to increase membership will take place at the executive committee meeting in St. Louis this March.

Director of International Affairs Report

Irving A. Lerch, *Director of International, Scientific Affairs – APS*

The shock wave from the political explosion that swept away the former Soviet Union four years ago and imperiled science in Russia and the newly independent states hit Washington with a vengeance in 1995. That these events are connected is clear. Science flourished so long as the political leadership connected research with national security. And now that external threats to our safety have greatly diminished, we are losing friends—fast—in both Congress and the Administration. Our only hope is to demonstrate to the public the very real connections between research and economic development; between science and prosperity. The officers of the Society and the Society's Office of Public Affairs are working overtime to educate both the politicians in Washington and the public.

The hope that international collaboration would take up some of the slack of shrunken domestic programs has not materialized. International science was largely a by-product of national programs and shrinking domestic spending imperils world science. Funding for the "Drell bump" has not cleared Congress and the profound cuts in plasma and fusion research are attended by failing prospects for ITER. Nor has the likelihood improved for international collaboration in the development of new neutron and photon sources.

It is vitally important that the Forum explore new ways of connecting with CISA and the Society's membership to promote a dialog of exploration.

In fact, there is no viable international structure for promoting collaboration among the world's scientific communities. The international scientific unions have neither infrastructure nor funds, the U.N. system is seriously overtaxed and faces declining prospects as budgets are continuously slashed, foundations have retreated from the arena and international organizations such as the Organization for Economic Cooperation and Development Megascience Forum has only just begun its study of potential intergovernmental mechanisms.

European disquiet over U.S. intentions with respect to participating in the LHC is increasing. Chris Llewellyn-Smith has made it clear that the CERN Council will probably be forced to impose some kind of limitation on the involvement of U.S. physicists if there is no contribution towards operations or construction. U.S. physicists now account for almost half of the scientists engaged in planning of LHC experiments and constitute the fourth largest national contingent at the laboratory.

But not all is darkness and foreboding. We continued our program of international schools in Ukraine and Russia and new initiatives have risen to replace the old: The European Union's INTAS program, the Civilian Research and Development Foundation (CRDF) first proposed by George Brown almost four years ago and NATO have all provided modest resources in support of FSU science. The CRDF has requested APS assistance with the review of scientific proposals which feature the collaboration of scientific groups in Russia and Ukraine with U.S. scientists.

In cooperation with UNESCO, APS organized a telecommunications workshop as part of the Second International Congress of Research and Communications in Physics (RACIP2) held in Tokyo this past Fall. We also organized a NATO Advanced Networking Workshop in Kiev. CISA has moved forward with the joint Chinese-U.S. telecommunications program and Fred Wilson, CISA incoming Chair, has put together an elaborate Chinese-U.S. electronic bulletin board to improve contacts between the two communities. In addition, the first meeting of the Chinese Physical Society/American Physical Society Joint Commission laid the groundwork for two workshops to be held in 1996: one on microstructured crystals for nonlinear optics to be convened in Nanjing and one on organic optical materials scheduled for Honolulu.

The UNESCO Physics Action Council recommended the formation of an intergovernmental science program in 1997 to encourage wider international collaboration and to invigorate relations between the learned societies, the academies, the international unions, governments, major laboratories, industry, and international funders. The Director General, Federico Mayor, has accepted the recommendation and has

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The Bellagio Meeting on International Science

Alan Bromley, *Yale University*

"La science n'a patrie," Louis Pasteur, November 14, 1888

Under the joint auspices of the MacArthur and Rockefeller Foundations and The New York Academy of Sciences a meeting involving representatives of seventeen countries – including both developed and developing – was convened at the Rockefeller Conference Center in Bellagio, Italy on October 30, 1995. In two days of intensive but cordial and productive discussions, the participants considered a wide range of the issues that would underlie the development of an optimal infrastructure for future international cooperation in science.

Science has always been one of the most international of human activities; as we move into the 21st century, however, there is a growing global consensus not only that science will inevitably play an increasing role in all our lives but also that we need entirely new mechanisms both to foster the advancement of science and to make its benefits accessible to many more of those on our small and fragile planet.

The increasing internationalization of science is being driven by many recent developments; among them are the recognition that the costs of major facilities defining the frontiers in many areas of science are outstripping the resources of even the most affluent of countries, the recognition that modern communication technology makes remote utilization of major facilities entirely feasible and greatly facilitates long range cooperation, the recognition that increasingly the most serious societal problems (e.g., environmental stewardship and world population growth) are truly global in scope and scale, and the recognition that the number of nations now doing frontier science, and capable of doing it, is increasing rapidly.

There was general agreement in Bellagio not only that existing non-governmental organizations ranging from UNESCO and ICSU with its member unions to multinational centers such as CERN, Trieste, and (formerly) Dubna have made, and will continue to make, vitally important contributions to international science, but also that none of them has all the necessary or desirable attributes for the future.

Among these are easy entrance and effective and satisfying participation of many nations whose scientific communities are relatively new and rapidly expanding, accessibility to, and sensitivity to the needs of young scientists, general and affordable access to the world's scientific literature as well as to frontier facilities, and more adequate funding mechanisms particularly for emerging scientific communities.

> ***It is essential, from the outset, that it be understood that the heart and soul of true international scientific cooperation is that which is between individual scientists, wherever they may be based.***

It is essential, from the outset, that it be understood that the heart and soul of true international scientific cooperation is that which is between individual scientists, wherever they may be based. However, to facilitate such cooperation – and that involving groups of scientists sharing common interests – a certain level of international infrastructure is mandatory. Such infrastructure must foster and not inject bureaucratic impediments into international science.

This question of infrastructure deserves further comment. If we are to succeed in involving a much larger fraction of the world's nations than is now the case we need to recognize from the outset that there are certain essential national prerequisites to effective participation in the international scientific community. Among them are an adequate agricultural economy, a stable and supportive political environment, a stable, quality educational system, and an indigenous science and technology enterprise that can provide challenging employment and career opportunities for scientists and engineers.

What lessons have we learned from the past? What are the essential characteristics of a new 21st century approach to international scientific cooperation? Clearly, the cooperation must be advantageous to all the participants and it is essential that there be sharp distinction between cooperation among equals and the various forms of foreign aid. In today's world it is essential that the focus be on fundamental scientific research – open to all; this does not preclude work on generic technologies but does mean that we should avoid activities that are

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1995 APS Committee on International Scientific Affairs

Brian Bonnar, *Office of International Affairs, APS*

The Society's Committee on International Scientific Affairs (CISA) focused much of their efforts this year on telecommunications. The international physics community's increasing reliance on fast access to communication and information resources has stimulated the interest of both CISA and the APS International Affairs office in this arena. They wanted to help provide the basic tools for electronically connecting academic and research communities around the world.

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The CISA-sponsored Memorandum of Understanding between the APS and the Chinese Physical Society (CPS), signed in 1994, mandated an APS presidentially appointed Telecommunications Committee led by 1995 CISA Vice Chair, Fred L. Wilson. With CISA's oversight, this committee subsequently developed a Bulletin Board System (CAIDIAN) which includes news of APS and CPS, travel opportunities, various program and conference announcements, as well as archives for technical materials in many sub-disciplines. A Comments section allows interactive discussions to evolve, further closing the gap between communities.

To be implemented in 1996, the system's easy access via the internet was featured in a CISA-initiated satellite Telecommunications Workshop held in conjunction with the 2nd International Conference on Research and Communication in Physics (RACIP2). The Workshop and Conference took place in Tokyo last September in collaboration with the UNESCO Physics Action Council's (PAC) Working Group (WG2) on Communication Networks in Science. Representatives from the Asia-Pacific region and elsewhere attended the workshop, which was designed to address basic infrastructure, management, and resource issues for telecommunications development.

With CISA's oversight, the office of International Affairs at the APS organized and co-sponsored a 7-day Advanced Networking Workshop in collaboration with the

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APS Supports U.S.-Korea Science and Technology Forum

J. Thomas Ratchford, *George Mason University*

The Third U.S.-Korea Science and Technology Forum was held December 13, 1995, at the Renaissance Washington Hotel in Washington. The Forum examined developments in science and engineering that are of special importance to the two countries and that affect their bilateral relationship. Policies relating to science and technology cooperation and trade were also addressed.

The APS was one of several supporting organizations for the Forum. Others included the American Association for the Advancement of Science and the American Association of Engineering Societies. Among the more than 50 speakers and panelists were Constance A. Morella, Chairwoman of the Subcommittee on Technology in the House of Representatives; Hazel O'Leary, Secretary of Energy; Mary Good, Under Secretary of Commerce; Praveen Chaudhari, Forum Vice-Chair (see related article on page 9); Lewis Branscomb of Harvard University; Rita Colwell, President of the AAAS; and Roland Schmitt, President Emeritus, Rensselaer Polytechnic Institute.

Of special interest to the physics community were sessions on materials and fusion. Korea has recently announced a very large increase in its fusion program, and funds cooperative programs in plasma physics at MIT, the Princeton Plasma Physics Laboratory, and other U.S. laboratories.

The Forum was organized by the Science and Technology Policy Institute of Seoul and the George Mason University Center for Science, Trade, and Technology Policy. Tom Ratchford, Chair of the Forum, is the Director of the GMU Center.

FIP Sponsored Session at the APS Meeting

For the fifth year in a row FIP is sponsoring the "Physics Without Border" session at the annual Spring meeting of APS, this year to be held in Indianapolis on May 4 at 2:30 p.m. The session number is L2.

This session was initiated by the Overseas Chinese Physics Association (OCPA) in 1992, for the purpose of bringing together ethnic Chinese speakers from different parts of the world, and to expose the American audience to research carried out in Asia. This year, for the first time, OCPA has invited the Association of Korean Physicists in America (AKPA), and the American Chapter of the Indian Physics Association (ACIPA), to join in to organize the session in order to make it even more international, and the Physics discussed to be more truly *Without Borders.*

The co-chairs of this session will be C.S. Lam of OCPA, W.Y. Lee of AKPA, and N. Anantaraman of ACIPA. The speakers and their titles are:

Paul Chu, University of Houston – *"What is new in high temperature superconductivity science and technology"*

M.V.N. Murthy, Institute of Mathematical Sciences, Madras, and McMaster University, Canada – *"Haldane statistics and its application to physical systems"*

Jin-Yue Gao, Jilin University, China – *"Light amplification and lasing without inversion: new frontier"*

J.E. Kim, Seoul National University, Korea – *"Axionic extensions of the standard model"*

News from the Membership

Has a newsworthy event occurred concerning you or another member of the FIP? This news should be brought to our attention. Suggestions should be sent to Laszlo Baksay at lbaksay@ua1vm.ua.edu.

Forum Vice-Chair Awarded National Medal of Technology

Praveen Chaudhari, Vice Chair of the Forum on International Physics, was awarded the National Medal of Technology by President Clinton on October 18, 1995. Dr. Chaudhari also heads the Forum committee responsible for organizing its sessions at APS meetings. He is a member of the National Academy of Engineering, a Fellow of the APS, and vice president of the Council of the International Union of Pure and Applied Physics.

He shares the nation's highest award for technological innovation with two other IBM scientists for their discovery of magnetic materials that made possible today's $2 billion rewritable-optical-disc data storage industry. The high density and portability of optical discs are major advantages.

Chaudhari's citation reads: "For the discovery and development of a new class of materials – the amorphous magnetic materials – that are the basis of erasable, read write, optical storage technology, now the foundation of the worldwide magnetic-optic disc industry." His colleagues at IBM are Jerome J. Cuomo and Richard J. Gambino, both retired. The three did their work which led to the award at IBM's Thomas J. Watson Research Center in Yorktown Heights, N.Y.

In the 1970's, Chaudhari and his colleagues studied certain combinations of rare earth and transition-metal elements. They found that some of these amorphous alloys enabled the formation of very small and well-defined domains that yielded strong and low-noise magneto-optic signals. Today, virtually all rewritable optical discs worldwide use these materials. In 1993 IBM demonstrated an optical data storage density of 2.5 billion bits per square inch on a removable disc using a blue laser and an amorphous terbium-iron-cobalt medium.

Enacted by Congress in 1980 and first awarded in 1985, the National Medal of Technology is presented annually to individuals, teams, or companies for accomplishments in the innovation, development, and commercialization of technology as evidenced by the establishment of new or significantly improved product, processes, or services. As specified in the Stevenson-Wydler Technology Innovation Act (Public Law 96-480) the Technology Administration of the Department of Commerce administers the award.

The ICFA 1995 Instrumentation School

Marleigh Sheaff, *University of Wisconsin*

The International Committee for Future Accelerators "ICFA 1995 School on Instrumentation in Elementary Particle Physics" was held at the Institute Jozef Stefan (IJS), Ljubljana, Slovenia, July 3-17, 1995. The school directors were Dr. Peter Krizan of the University of Ljubljana and IJS, Dr. Ariella Cattai of CERN, and Dr. Marleigh Sheaff of the University of Wisconsin. This was the sixth in the series of instrumentation schools organized by the ICFA Panel on Instrumentation, Innovation, and Development, chaired by Dr. Tord Ekelof of Uppsala.

The format for the ICFA Instrumentation Schools follows an established tradition. There are lecture courses in various state-of-the-art instrumentation techniques in current use in experimental particle physics. These are taught by researchers who are recognized experts in the field. The lectures are augmented by at least six "hands-on" laboratory courses designed to demonstrate the material presented. It is the opportunity to participate in these advanced laboratory sessions that sets these schools apart from others aimed at the same audience, which is advanced graduate students and relatively recent Ph.D. researchers.

This is truly an international school open to students from all over the world. Approximately half of the students that are selected for participation come from dollar-poor or developing countries. The motivation for changing the venue of the school from one part of the world to another is to enable a larger participation by students from each of the different regions. The response to this opportunity has been extremely enthusiastic. This year was no exception. Not only were there many students from all over Western Europe, but also from Eastern Europe and the Newly Independent States. These included participants from Russia, Hungary, Romania, Slovenia, Ukraine, Armenia, and Uzbekistan. The rest of the students selected came from North and South America, Asia, Africa, and Australia.

The response to this opportunity has been extremely enthusiastic. This year was no exception.

The purpose of this activity is twofold. The first goal is to encourage increased participation by young physicists from dollar-poor and developing countries in elementary particle physics experiments by providing them with the information and skills needed to undertake detector development for these experiments. The intention is to foster possible future initiatives in detector development at the participants' home institutions. While the instrumentation techniques that are presented are those in current use in particle physics, many have wide-ranging applications such as medical imaging or non-destructive evaluation of materials. The second goal is to encourage future collaborations in experimental elementary particle physics involving physicists from all parts of the globe.

Future schools are planned for 1997 and 1999. One of these is to be held in China, the other in Mexico.

The Bellagio Meeting on International Science *(cont'd from page 7)*

directly relevant to the competitive international marketplace. At the same time, it must not be forgotten that a large fraction of the world's scientists are employed in directly market-driven industrial organizations. Past attempts by the ICSU Unions to develop effective ways to bring such scientists into their activities, with the exception of the IUPAC series of CHEMRAWN (Chemistry Research Applied to World Needs), have not been successful.

The challenge will be to provide a structure that includes all three of academic, industrial, and governmental scientists without becoming strangled by questions of patents, copyrights, intellectual property rights, and market share.

A statement summarizing the discussions at Bellagio and recommendations for future action is currently in preparation and it, together with a compilation of short essays contributed by each of the Bellagio participants will be made available from the New York Academy of Sciences in the near future.

Is U.S. Physics Truly International?

William A. Blanpied, *National Science Foundation*

"Science," as we have been assured since our undergraduate days, "knows no international boundaries!" Can the same be said for scientists?

Physicists, particularly readers of this newsletter, will no doubt regard the answer as being so self evident as to find the question itself scarcely relevant to our discipline which, with the possible exceptions of mathematics and astronomy can, with considerable justice, claim to have been the most internationalized of the sciences for some time. Leaving aside the 17th century, the development and elucidation of quantum mechanics in the 1920s and 1930s was the shared work of physicists from many European countries, of Americans, and of at least two Asians: the Indian S.N. Bose and the Japanese H. Yukawa. CERN, created in 1952, remains a monument to the conviction of leading Europeans of the post-World War II years that the international character of physics should be made manifest by international institutions for its conduct. Since the 1950s, qualified user groups from all countries have enjoyed access to accelerator facilities in the United States, Europe, Japan, and more recently, China. As a final, obvious example, physics graduate schools in U.S. universities have admitted qualified non-U.S. students since World War II, one happy result being that foreign-born and U.S.-educated physicists now occupy positions of influence in university, corporate, and government laboratories not only in the United States, but in many other countries as well.

All that having been said, it remains the case that with a few notable exceptions like CERN, virtually all institutions where physicists ply their normal crafts and establish their careers are national, rather than international. Similarly, with the exception of the European Union, the principal organizations that fund research are agencies of national governments. These circumstances have been responsible for at least two partial barriers to more complete integration of U.S. physics into international physics: first reluctance, until recently, to explore significant international cost-sharing arrangements for major facilities; second, a lack of appreciation of the value of foreign working experience in the education of young U.S. physicists.

With a few notable exceptions like CERN, virtually all institutions where physicists ply their normal crafts and establish their careers are national, rather than international.

The first of these barriers has been widely discussed during the past few years. Whether or not the late, lamented Superconducting Super Collider (SSC) would have survived and prospered, had it been planned as an international facility from the outset, is an intriguing if ultimately unanswerable question. A more useful question for future policy may be why, if physics is a truly international pursuit, the SSC and CERN's rival Large Hadron Collider (LHC) proceeded on separate tracks in the first place? With the demise of the SSC, serious negotiations consistent with the Drell report are underway that could lead to a substantial U.S. contribution to the LHC. Yet the nagging thought persists that particle physics might be in a far better position today, at least from an international perspective, if proponents of the SSC and the LHC had initiated serious negotiations a decade ago about substantial international collaboration and cost sharing.

But a decade ago, that would have been difficult if not impossible primarily because, while physicists are in the habit of discussing future opportunities on an international basis, national governments simply are not. And national governments, after all, provide the financial resources for both domestic and international scientific projects. Until recently, no vehicle existed where program managers from agencies that fund large physics facilities in the world's principal scientific countries could meet on a regular basis to discuss promising opportunities for international collaboration and cost-sharing. Given this lacuna, many worthwhile collaborations in addition to a possible internationally-transcendent SSC/LHC may have literally dropped through the cracks!

The OECD (Organization for Economic Co-operation and Development) Megascience Forum, created as a result of strong U.S. government leadership, is an attempt to remedy this deficiency by providing a venue where national program officers responsible ➔

for big science projects in various disciplines can sit down with their foreign counterparts and members of non-government disciplinary communities to discuss the difficult issues associated with international collaboration and cost-sharing. This initiative deserves the support of, and constructive criticism from, the American Physical Society. The Forum on International Physics could consider means to take the lead in this respect.

The second barrier to a fuller internationalization of U.S. physics has been less widely discussed, even though it affects all physicists — most particularly those in "small science" subdisciplines. As I was completing research for my doctoral dissertation in nuclear physics a generation ago, my advisor urged me to consider a postdoctoral position in Europe as the culmination of my apprenticeship. As a result, I enjoyed a memorable year in Italy where I worked at what was then the brand new electron synchrotron facility at Frascati. Although no seminal published papers resulted from that year, the experience working in a non-U.S. scientific culture was pivotal to my understanding of the international culture of physics, and the people I met remained important in my subsequent career. In fact, Giorgio Salivini, who led my research group, is now Italian Minister of Research and Education. Many of my peers profited from similar experiences working abroad immediately after their receiving their Ph.D.'s.

Today, relatively fewer newly minted physicists leave the United States for such extended working experiences, unless they are in subdisciplines such as particle physics where working abroad as a member of a user group is essential. Many reasons have been cited for this state of affairs. The most telling is that, given the almost hopelessly impossible job market in academic physics, young people put their careers at risk by taking off a year to work in foreign laboratories, no matter how good the physics may be at such facilities. In short, younger physicists are unlikely to seek working experience outside the United States unless they are encouraged to do so by their senior mentors — many of whom have extensive collegial contacts abroad. However, those mentors are unlikely to provide the needed encouragement unless they are convinced that international experience is an essential element in the apprenticeship of a young physicist, as it was considered to be as recently as a generation ago.

Perhaps the central transdisciplinary issue that concerns the APS today has to do with physics education and employment: how to transform graduate education so that new generations of physicists will be adequately prepared to contribute to a broad range of endeavors in addition to academic physics, while preserving quality and excellence. Many if not most of those possible endeavors have decided international dimensions, consistent with what is commonly referred to as the globalization of the economy. APS discussions about broadened graduate education in physics must be cognizant of this essential point. The Forum can take the lead in assuring that international dimensions of physics education are seriously considered.

Director of International Affairs Reports *(cont'd from page 6)*

invited the PAC to begin planning. Upon implementation, the program is expected to combine UNESCO resources with the matching contributions of participating governments. This would greatly enhance funding for the activities of the international unions and stimulate wider collaboration.

On Tom Ratchford's initiative, Council approved APS participation as a sponsoring organization in the U.S.-Korean Science and Technology Forum. We will thus join the Korean Physical Society in the Forum's next series of meetings scheduled for Washington, D.C., in December, 1995.

Planning is already underway for the next meeting of the Canadian, American, and Mexican physical societies which will take place during the April Washington, D.C., meeting in 1997 (CAM '97). This series of North American meetings began as an initiative of the FIP Executive Committee in 1992 and has now become a mechanism for promoting ties between the three societies. It will fall to this Forum and others to assist in planning special events and meetings.

The coming year offers difficult challenges and the Forum on International Physics must provide the leadership and means for gauging the obstacles in our path. It is vitally important that the Forum explore new ways of connecting with CISA and the Society's membership to promote a dialog of exploration. This past year has brought declining enrollment to FIP as interest has swung away from the international arena to domestic problems. But physics is a uniquely international enterprise and there will be no viable or lasting solutions if we fail to maintain our presence on the international stage.

CONTROVERSY CORNER

APS Policy on Scientists from the Former Soviet Union

Munawar Karim, *St. John Fisher College*

A general policy has been in effect to provide scientists of the Former Soviet Union with subsidized subscriptions to APS journals, research grants, and other types of subsidies. As an APS member it is not at all clear to me how this policy got adopted. Such an important initiative, I believe, should have been undertaken after direct consultation with the APS membership. Although we have representatives in APS Councils who are charged with making day-to-day decisions, it is my view that issues of such importance need direct input from members. Money is one factor since our fees are increasing and we are even asked for donations. There are also larger issues involved which should not be mixed in with routine policy decisions.

One is compelled to ask: what is the direct interest of APS members in the financial and professional well-being of physicists in the FSU? Apart from nebulous and entirely unverifiable claims that assisting fellow physicists is for the "common good," the way the policy has been adopted and is now being implemented, seems to this member open to question.

Some years ago I received a request from a colleague at a Nigerian university for a liquid nitrogen dewar (cost: $800) to carry out an experiment in photoluminescence. After writing to several agencies, including the NSF and the APS, all I received was a polite "no," because of lack of funds or because such assistance was "not within the aims" of these agencies. It seems strange to me that funds are now forthcoming from these same agencies when they are to be used for scientists in the FSU. If you think FSU scientists are having a hard time visit any African university to open your eyes. If the APS feels that the members should assist deserving scientists I suggest to take up the cause of African physicists. I will be happy to provide some addresses and help in any way I can.

"CONTROVERSY CORNER" is intended to incite discussion on possibly "hot" topics, which are brought to our attention from within the membership. Opinions expressed are not necessarily those of the FIP or its elected officers.

APS Council Meeting November 18-19, 1995

Some items of interest to the FIP:

Centenary

There is continued planning for the centenary meeting to take place in March 1999 in Atlanta. The weekend of March 20-21 will be used as celebratory days. Foreign societies are expected to participate. The entire meeting is to have an international flavor.

China

The Council passed two resolutions connected with China. The first one states our concern with the MOU (particularly with journal subscriptions). The President is to report back at the next Council meeting, and if no satisfactory progress has occurred, the MOU is to be abrogated. CIFS and CISA are to be consulted. The second resolution asked the President to write a letter to appropriate individuals (in consultation with CISF and CISA) expressing our continuing concern about the (human rights-related) treatment of some of our colleagues in China.

Matching Membership Program

The Matching Membership Program has been reviewed by CISA because it has gotten "out of hand" due to the FSU. The proposal is to cap the number at 1.5% of the APS membership (630), which allows 130 new ones at the present time. Two possibilities would be made available: The first one is a half-price membership with subscription to one journal. The second is an graduated membership, starting at 20%, increasing 10% a year until 50% is reached at which time one journal would be available at members' rate. A maximum of 6 years participation was recommended.

Tokyo

There was a written summary of the "Tokyo Declaration of Physical Societies," an outcome of RACIP, held in Tokyo September 18-22, 1995.

Reciprocal Agreements

The APS has signed reciprocal agreements with the Slovak Physical Society, the Nepal Physical Society, and the Estonian Physical Society.

FIP Elections

You are asked to elect the next FIP Vice-Chair and two members of the Executive Committee (replacing Thomas Nash and Marleigh Sheaff). The election ballot is on page 20 of this newsletter. New officers take office in January 1997. The Vice-Chair becomes the Chair-Elect in 1997 and the Chair in 1998. Executive Committee members serve three year terms.

Each year the FIP nominating committee is charged with preparing a slate of candidates for the Vice-Chair and Executive Committee positions. Since finding good candidates is essential to the functioning of the FIP, we call on the membership to suggest candidates for the 1996-1997 election. We would appreciate information about the nominee that would be helpful in making selections. Self nominations are very welcome. Nominations should be sent to the Nominating Committee, chaired by the 1996-1997 Chair-Elect, Praveen Chaudhari at chaudha@watson.ibm.com.

Candidates for Vice-Chair

David Pines

David Pines received his Ph.D. from Princeton University in 1950. He is Research Professor of Physics in the Department of Physics, UIUC, where he has been on the faculty since 1959. He presently carries out theoretical research on superfluidity in neutron stars and high-temperature superconductivity. He serves as editor of *Frontiers in Physics* and has recently concluded a twenty-two year term as Editor of *Reviews of Modern Physics.* He was a Guggenheim Fellow in 1963 and 1970; the Lorentz Professor at the University of Leiden in 1971; a Sherman Fairchild Distinguished Scholar at CalTech in 1977-78; the 1986 B.T. Matthais Visiting Scholar at Los Alamos National Laboratory; a visiting professor at the College de France in 1989; a recipient of the Dirac Silver Medal for the advancement of theoretical physics, and the Eugene Feenberg Memorial Medal for his contributions to the theory of many-body systems. He is a member of the National Academy of Sciences, the American Philosophical Society, and the American Academy of Arts and Science; and a Fellow of the American Physical Society and the American Association for the Advancement of Science. In 1989 he was elected a foreign member of the USSR (now Russia) Academy of Sciences; and in 1995, an honorary member of the Hungarian Academy of Sciences. He is a cofounder and external professor of the Santa Fe Institute, where he has served as Chair of the Board of Trustees, Vice-President, and Co-chair of the Science Board.

Beginning in 1968, as Co-chair (with C. Herring and I. M. Khalatnikov) of a series of joint U.S.-USSR conferences on the frontiers of condensed matter theory, and continuing through his service as Co-chair (with Roald Sagdeev) of a major U.S.-USSR joint working group in physics, he developed effective working relationships between the U.S. and Soviet physics communities which made possible significant collaborative research (some 80 joint papers were published) during a period (1968-88) in which communication and collaboration with the Soviets in other fields of science was difficult, if not impossible.

As Chair of the National Academy of Sciences-National Research Council Board on International Scientific Exchange (1973-77), he initiated a wide-ranging review of the interaction of the U.S. scientific community with those, abroad, with special attention to a detailed review of U.S.-USSR scientific cooperation. He was a cofounder of the Center for Fundamental Physics (Moscow) and serves on its Governing Board, and is an academic advisor to the International Institute for Advanced Studies (Kyoto).

"Science is today an international activity, and physics, in which both large scale and small scale international collaborations play an increasingly important role, is perhaps the most international of all sciences. In the age of internet and fax, it becomes as easy to communicate and collaborate with a colleague abroad as with one in another U.S. city, provided that colleague has access to a fax machine and the internet. That access is likely to play an increasingly important role, for physicists everywhere, as it becomes routine for preprints to be sent electronically, and the APS makes the shift to electronic journals. Convenient electronic access is but a part of the research infrastructure required to nourish and assist physicists in developing countries, in Eastern Europe, and in the FSU. Given the active participation by many of those physicists in the U.S. research enterprise, it becomes a matter of self-interest, not altruism, for us to help build and maintain that

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research infrastructure. An additional incentive for us to devise creative ways of doing so comes from the increasingly larger fraction of graduate students and postdocs in U.S. physics departments. In our present difficult circumstances, it is clear that only a small fraction of those physicists will become part of the U.S. research enterprise. To the extent that attractive teaching and research positions are not available in their home countries, it is clear that many talented young people will be lost to the physics research community a loss which we can ill afford.

The American Physical Society and its Forum on International Physics have taken a number of important steps to address these and related problems, but more can be done. Through its Newsletter, through a node on the World Wide Web, and through its sponsorship of sessions at APS meetings, the Forum can play a significant role both in defining problems and devising potential solutions to them. As an officer of the Forum, I would hope to play an active role in these and other potential Forum activities."

James Vary

James P. Vary, 53, is Professor of Physics and Acting Director of the International Institute of Theoretical and Applied Physics (IITAP) at Iowa State University (ISU). He was educated at Boston College (B.S., 1965, Magna Cum Laude), and at Yale University (M.S. ,1966 and Ph.D., 1970). He spent two postdoctoral years at MIT's Center for Theoretical Physics and three years at Brookhaven National Laboratory as Assistant then Associate Physicist. In 1975 Vary joined the faculty at Iowa State University and has built a 10-member high energy nuclear theory group.

Vary has served on a number of APS Committees including the Nominating Committee of FIP. He recently completed three years of service on the Nuclear Sciences Advisory Committee (NSAC) appointed by DOE and NSF. He has recently been appointed for three years to the APS Committee on International Scientific Affairs (CISA).

Vary has guided the initial growth of IITAP which is patterned after the International Centre for Theoretical Physics in Trieste, Italy. With sponsorship from ISU and UNESCO, IITAP builds partnerships between developed and developing countries for achieving excellence in scientific research and education. IITAP runs international conferences and workshops, both here and abroad, and supports international visits for a few hundred scientists per year. Vary has secured support for IITAP's activities from federal agencies, foundations, international organizations and multi-national corporations.

His distinctions include awards of an Ohio State University Distinguished Visiting Professorship (1987-88), Fellow of the American Physical Society (1991), and an Alexander von Humboldt Senior Research Award (1993).

"Goethe said: 'Both art and science belong, like every higher good, to all the world and can be fostered only by the free flow of mutual influence among all contemporaries, with constant regard for all we have and know of the past.'

As a member of FIP you probably share with me a conviction that, with the privilege of membership in our Society, we have a duty to promote the global sharing of knowledge, especially in physics, for the betterment of the human condition. Mobilizing our collective energies to serve this goal is my primary vision of the FIP leadership role.

Physicists have long been leaders in international collaboration for advancing scientific objectives. Among professionals, physicists have also led in fostering international dialog during periods of major economic and political shifts. Since the end of the Cold War, there is a great need for new paradigms of international cooperation in science and FIP has the opportunity to promote sustainable linkages with a broader range of physicists abroad and on a wider agenda than before.

Furthermore, interest in international collaboration in basic sciences has rarely been stronger – in 'large' science projects where governments and scientists seek to pool resources and avoid duplication, in science education at all levels where there is pressure to innovate, in ensuring free access to scientific information, in international and regional efforts to promote scientific exchanges and advanced training, and in numerous other areas. FIP could play a leadership role in promoting new partnerships that advance this agenda through win-win arrangements.

In practice, the U.S. higher education system is one of our most successful vehicles for promoting international cooperation, reducing barriers to dialog and thereby promoting global security. I believe it is ➔

appropriate for FIP to address how the APS can be a more effective vehicle for promoting continued strong relationships with our accomplished graduates abroad and their colleagues.

We have crossed a new threshold in global sharing due to advances in communications technologies. FIP should work with the APS to promote programs that assist scientists in the developing world to become better aware of these advances and to have greater access to scientific information and resources for generating new knowledge and educating a scientifically literate society.

Opportunities exist to greatly amplify the FIP programs in used books, journals, and equipment with formal participation from universities, government, and industry. Obtaining new partners and aggressively seeking donors would potentially have major global impact.

The goals I have outlined would require new financial resources. I am convinced these resources are accessible via new APS-industry-government-university relationships. What better way can there be to discover this than through the FIP with its members' connections to these organizations? I envision a bottom-up approach where FIP consensus is built and translated into action by the membership in a grass-roots fashion.

Finally, if the APS through its FIP does not take the leadership role in identifying and forming consensus, generating resources, galvanizing action consistent with that consensus, and working effectively to insure success – then who will? If no one does, what kind of a script are we sanctioning for the 21st century?"

Candidates for Executive Committee

Saeyoung Ahn

Dr. Saeyoung Ahn studied statistical physics at Yeshiva University, New York City (M.A., 1971 and Ph.D., 1973) after undergraduate work at the Seoul National University (B.A., 1968). He continued the study of phase transition and critical phenomena in the State University of New York and the University of Pennsylvania and completed the quantum scaled particle theory project (1973-1975). Since he joined the Navel Research Laboratory in 1976, he has worked on the mathematical physics of the inverse scattering problem in plasma, electron beam plasma physics, field emission arrays for power tubes, electron cyclotron resonance maser for gyrotrons, and drift wave instability for peniotrons.

He served as an organizing committee member and chair at numerous international conferences including Asian, Korean, U.S., and international conferences. He has also served the last twenty years for Korean-American Scientists and Engineers in America, and is currently President of the Association of Korean Physicists in America (AKPA).

"Physics is truth in nature. Physics demands honesty. Physics is universal. We know we all love physics. Physicists show truth and physics transcends regional bondage, barriers of idealism, and societal paradigms. APS has pioneered in this. From the next year on, thanks to FIP and OCPA, three ethnicities of physicists in the U.S. will initiate a new beginning for a broader session of Physics-Without-Borders at the spring FIP meeting at Indianapolis among the Chinese, Indian, and Korean. This is a small step for open communication and mutual understanding among physicists from Asian countries. Indeed we will have to work hard to promote collaboration with underprivileged physicists in the developing countries. We are anxious to reach our colleagues in many unreachable parts in Latin America, Eastern Europe, and Asia. We should more aggressively seek to provide them with more opportunities, books, journals, and increased participation in our conferences. I will be very happy to contribute more to this noble goal."

Jayanth R. Banavar

Jayanth R. Banavar is a Professor of Physics at Pennsylvania State University, a position which he has held for four years. He attended Bangalore University in India (B.Sc., 1972, Honors; M.Sc., 1974) and completed his education in the United States, at the University of Pittsburgh (M.S., 1975; Ph.D., 1978). Dr. Banavar then served as a research associate for three years at the University of Chicago. In 1981 he became a postdoctoral Member of the Technical Staff at Bell Laboratories, a position which he held until becoming Associate Professor of Physics and Materials Research at Pennsylvania State University. Dr. Banavar is an Fellow of the American Physical Society, and received the Fulbright grant last year.

"I am a native of India. During my stay in the U.S., I have benefited a great deal from the wonderful interactions I have had with people from various parts of the world. At present, I have strong collaborative ties with

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physicists from England, France, India, Italy, and Poland. These collaborations have been facilitated by visiting Professorships in Paris and Padova, and grants from NATO, NSF, EPSRC (UK), the Fulbright foundation, and an Indo-U.S. Science and Technology Fellowship. At Penn State, I have served as the head of the graduate admissions committee for a couple of years and have been enriched by the talented pool of incoming graduate students from all over the world. To date, I have had four graduate students from Taiwan, Poland, Russia, and Estonia.

I feel that physics provides a forum for the free flow of ideas within a global community. International cooperation through the medium of physics can play a vital role in transcending geographical boundaries and cultural backgrounds, thereby making the world a better place."

Dongqi Li

Dongqi Li is an Assistant Physicist in the Materials Science Division of Argonne National Laboratory. She was born in China in 1963. She received her undergraduate education at Beijing University in Beijing, China, where she received her B.S. in physics in 1985. She then remained in Beijing for three years serving as a research assistant at the Institute of Physics of the Chinese Academy of Sciences. In 1988 she traveled to Northwestern University as a Visiting Scientist to their Department of Physics. Dr. Li then became a Research Assistant and Graduate Fellow at the Department of Physics at Syracuse University, where she was the recipient of several awards, including the Sigma Xi Outstanding Graduate Student Award, the American Vacuum Society Student Prize, the Materials Research Society Student award, and earned her Ph.D. in experimental condensed matter physics in 1993. She immediately became a postdoctoral Appointee at Argonne National Laboratory, and was appointed Assistant Physicist in 1994.

Dr. Li performs research in the areas of surface and thin film magnetism, electronic structure of thin films and surfaces, metal-on-metal epitaxy, magneto-optics, electron spectroscopies, synchrotron radiation, surface science, and superconductivity. She has published 48 papers, the majority of which have appeared in APS publications. Dr. Li has also given seminars and colloquiums at various universities, national laboratories, and industrial research labs, and numerous presentations at conferences.

"International cooperation is more important than ever in today's physics community. For APS, not only does a portion of the membership reside in other countries, but also more and more people are now involved in international affairs to some degrees through international conferences, collaborations, and other activities with physicists around the world. They need the organization to represent their interests in these areas. The Forum of International Physics has been an influencing force in many of the international activities of the APS and has played a leading role in encouraging scientific exchange and mutual understanding on the global scale through excellent programs and collaborations with sister societies. Such a role cannot be diminished but should only be strengthened. If elected, I would like to further increase the visibility of FIP and the participation among its members. Besides keeping up with the success of existing programs, we should also explore new mechanisms to enhance scientific interactions of the physicists in all nations in order to better serve the needs of our members. For example, we could consider ways to further promote international participation and cooperation at large physics facilities, including the ones in developing nations. It is also crucial to keep collaborating with our sister societies to establish and/or improve global electronic networking and electronic publishing in order to encourage open and speedy communication among all physicists. As a young scientist, I would be delighted to get involved with FIP and to put my energies into working for a harmonious international community of physicists well into the future."

Myriam Sarachik

Born in Antwerp, Belgium, Myriam Sarachik attended primary school in Antwerp and Havana, Cuba and the Bronx High School of Science in New York. She earned a B.A. cum laude from Bernard College in 1954, majoring in physics and, after work- ➔

ing for a year at the IBM Watson Laboratories at Columbia University, she returned to graduate school, receiving a M.S. from Columbia in 1957 and a Ph.D. in 1960. Following a year as a research associate at Watson Laboratories while teaching at City College in the evening, she became a Member of the Technical Staff at Bell Telephone Laboratories at Murray Hill, New Jersey. In September 1964, she was appointed assistant professor at the City College of the City University of New York. She was promoted to associate professor in 1967, to the rank of professor in 1971, and distinguished professor in 1995. She served as the Executive Officer of the university wide CUNY Ph.D. program in Physics from 1975 to 1978.

She has served in an advisory capacity to NSF as a member of its Advisory Committee for Research, the NSF Advisory Council and its Executive Committee, the Presidential Young Investigators Panel for the Division of Materials Research, the NSF Advisory Committee for DMR, the Seitz-Richardson Panel to consider the future of research at high magnetic fields, and various site-visiting teams. She is on the Board of Directors of the Committee of Concerned Scientists, and a member of the Human Rights of Scientists Committee of the New York Academy of Sciences.

For the American Physical Society she has been on the Nominating Committee, on the Committee on the Status of Women in Physics, and has served as a member and chair of the Committee on the International Freedom of Scientists. She was elected to serve a three year term from 1981 to 1984 on the Executive Committee of the Division of Condensed Matter Physics, and was elected to chair the Nominating Committee of the Society from 1990 to 1992.

An experimental condensed matter physicist, Sarachik has done work in superconductivity, disordered metallic alloys, metal insulator transitions in doped semiconductors, and hopping transport in solids. She is a fellow of the American Physical Society, a member of the National Academy of Sciences and a fellow of the New York Academy of Sciences. She is the recipient of the 1995 Mayor's Award for Excellence in Mathematical, Physical, and Engineering Sciences.

"Scientific innovation and technical advance are important to the nation's economic growth and competitiveness, yet the quest for fundamental scientific knowledge is a pursuit that clearly transcends national boundaries. Science establishes a common language and a commonality of interests among its practitioners that has often provided a valuable bridge between nations. I believe it is important to continue and promote such bridges to the extent possible through joint efforts promoted by our respective scientific societies."

1995 APS International Scientific Affairs Committee *(cont'd from page 8)*

Ukrainian Physical Society in Kiev, Ukraine last September as well. Supported by NATO, UNESCO-PAC's WG2 and the International Science Foundation, the Kiev Course offered detailed instruction in network infrastructure and system administration to over 40 participants from throughout the former Soviet Union. Future workshops are anticipated in St. Petersburg, Russia, and in Accra, Ghana during 1996.

Of particular importance to the Society's international membership was a CISA-sponsored review of the Society's Matching Membership program. This program originally was intended to assist colleagues in currency-poor locations who lacked access to basic information. Unfortunately, the numbers of applicants to the program now far exceed the limit initially imposed by Council while there has been a sharp decline in available outside funds. To continue APS assistance of colleagues around the world, CISA recommended a restructuring of the Matching Membership program which was approved by Council in November and will shortly be implemented. In addition to a graduated scale for Matching Member dues participation, membership in the program will be limited to a maximum of six years.

Finally, CISA last August underwent a formal review by the Society's Committee on Committees (COC). This review in general was quite positive, but did suggest a re-invigorated connection between CISA and the FIP. CISA and the FIP have taken a significant step in this direction and will co-sponsor a session, "Telecommunication and Access to Scientific Information" at the 1996 April Meeting in Indianapolis.

Forum on International Physics Ballot

Please return this ballot by June 1, 1996 to Charles Falco, University of Arizona, 1118 East 4th Street, Tucson, AZ 85721. Non-U.S. members may want to insert this ballot in an airmail envelope. Alternatively, you may fax the ballot to (520) 621-4356. Please do not sign this ballot.

Vice-Chair (please choose one):

- ❑ David Pines
- ❑ James Vary

Executive Committee (please choose two):

- ❑ Saeyoung Ahn
- ❑ Jayanth Banavar
- ❑ Dongqi Li
- ❑ Myriam Sarachik

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Wheatley Award
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Jorge Morfín
Ray Orbach
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