

Message from the Chair

Gordon Thomas, NJIT, Newark, NJ

The main reason for this Newsletter is to encourage you to vote in the election for FIAP officers. The info on the candidates is here, in addition to being on the web at [<http://www.aps.org/FIAP/index.html>]. Voting will take place electronically only. I'll remind you. The election will close on June 22, 2002. If you have not previously submitted an electronic ballot in response to an earlier e-mail solicitation, please consider doing so now.

The candidates are excellent. Find the ones who will make your voice heard within the APS. Some represent youth and enthusiasm, some experience and enthusiasm, some universities, some industries, some institutes; some have plans you may like.

FIAP Goes to Austin

Stefan Zollner, FIAP Vice Chair

The next APS March meeting (2003) will be held in Austin, TX. Continuing a FIAP tradition, part of our program will have a local focus, primarily on microelectronics, but we are still looking for ideas about sessions on energy, maybe with a speaker from Houston. There is still time to propose invited sessions. Particularly, FIAP is looking for a good invited session on energy physics issues. Help us by proposing sessions and speakers and by submitting abstracts.

The focus session topics will be posted on the FIAP web site <http://www.aps.org/FIAP/index.html>, then click on "events". (See also a preliminary list of focus sessions below). Please nominate invited speakers for these sessions by sending an email to the focus session organizers (just find the focus sessions on the FIAP web page, click on the session organizer's name, and send an email to the organizer giving your suggested speaker's name, title, affiliation, and contact information). We will keep accepting nominations until September, but usually it is better to make such nominations early.

Also, FIAP has proposed joint tutorials and sessions with other APS units, such as DMP (nanoscale science and engineering, semiconductors), DLS (IR lasers and optical communications), GIMS (Instrumentation and Measurements), FPS (Economic Value of Research, Physicists on Wall Street). Look for focus session topics as you submit your abstracts in November. We are also working on a career development session "Training physics students for the Semiconductor Industry".

The Nominating Committee that I chaired narrowed the field, and we've shortened the bios and statements, so you should be able to read all the info carefully and choose your favorites in 15 minutes. The winners in last year's election had only a few over 200 votes (out of our 5000 members), so your vote and those of your friends are heavily weighted. The winners will choose invited speakers (led by Stefan Zollner this year), APS Fellows (led by Ken Hass this year), and new initiatives for FIAP (led by the initiator).

A preliminary report in this issue by Stefan Zollner on the upcoming March meeting in Austin will provide you a foretaste of the exciting program that is being planned. Stefan also invites you to make suggestions for FIAP's part of this meeting.

Preliminary list of FIAP focus sessions at the Austin APS March meeting

See the FIAP homepage and the APS March meeting pages for the final sorting categories, then click on "events"

1. Instrumentation and Measurements for the Semiconductor Industry
2. Nonequilibrium quantum dynamics in electronic and magnetic systems
3. Applications of optical spectroscopy
4. Understanding molecular and nanoelectronics
5. Mechanical properties of nanostructures thin films and coatings
6. Front-End Materials and Processes for Scaled Silicon CMOS

contd on pg. 2

INSIDE

FIAP 1998 Election Candidates	2
Ballot	Enclosed

FIAP Goes to Austin *contd from pg. 1*

7. Optical Telecommunications
8. IR applications of Semiconductor Nano- and Microstructures
9. Progress in Photovoltaic Technology
10. Novel Thermoelectric Materials and Phenomena
11. Quantum Computing and Quantum Cryptography
12. Physics of Silicon in Electronic Materials
13. Reliability of Photonics Materials and Systems
14. Science and Technology of Nanoscale and Molecular Mechanical Systems
15. NEMS and MEMS
16. Radiation processing

FIAP 2002 Election Candidates

Vice Chair Candidates

George O. Zimmerman, Boston University



Bio:

Received Ph.D. in Physics from Yale University in 1963. APS member since 1959. On the faculty of Boston University since September 1963. Physics Department Chairman 1971-1983. CEO of ZerRes Corporation 1992-1997. Participated in many Superconducting Industry panels and activities. Served on many University, National and Visiting Committees. Initiated educational outreach programs. Organized symposia, the latest being "The XV

International Symposium on the Jahn-Teller Effect", August, 2000. Sabbaticals spent at BNL, Leiden, Imperial College, UCSD among others. Holder of 10 patents and author of over 100 publications in condensed matter physics. Member of FIAP since its inception.

Statement:

FIAP provides an essential link to our colleagues in Industry and has had success in the establishment of a dialogue between Physics and Industry. I want to further the Physics-Industrial contacts by instituting co-operative programs with Industrial Physicists being brought to Universities as speakers as well as into University Laboratories for a sabbatical to give Academia a new perspective. I know that the converse of the latter does exist. I want to see University curricula incorporate some skills into their courses, which might be of use in Industry, in addition to the techniques and knowledge necessary for pure research. I would like to extend the list of AIP corporate associates to industries not represented on the current list, such as electrical power generation, power distribution, and the steel and metals sectors. I am also looking forward to an increase in FIAP visibility and importance in the APS community.

Dan Fleetwood, Vanderbilt University



Bio:

Dan Fleetwood received his Ph. D. in Physics from Purdue University in 1984. He joined Sandia National Laboratories in 1984, and was named a Distinguished Member of the Technical Staff in 1990. In 1999, he moved to Vanderbilt University, where he is a Professor of Electrical Engineering, Professor of Physics, and Associate Dean for Research in the School of Engineering. Dan is the author of more than 200 publications on radiation effects and low-

frequency noise in microelectronic devices and materials. He is a Fellow of IEEE (1997) and The American Physical Society (2001), and a Senior International Correspondence Chess Master.

Statement

I have had the good fortune to work at the intersections of physics, engineering, and materials science – performing basic studies to understand the physics that governs the radiation response and long-term reliability of microelectronics, using this knowledge to improve semiconductor device characterization and processing; and serving on government/industry panels to develop practical, economical test methods. This background is a good match to the diversity of FIAP membership. I believe the greatest service FIAP provides is the opportunity to be a community again, as opposed to being divided among disciplinary professional societies. I have been active in IEEE since 1987, and have held several positions within the Nuclear and Plasma Sciences and Electron Devices Societies. I would be happy to apply these experiences in service to FIAP to address future challenges such as helping to obtain increased funding for the natural and applied sciences, and enhancing membership services (conferences, workshops, communications).

Members-at-Large Candidates

Cynthia Dion-Schwarz, Institute for Defense Analyses

**Bio:**

Cynthia Dion-Schwarz (B.S. Physics and Mathematics, 1988, George Mason; Ph.D. Physics, 1995, University of Maryland) has been a Research Staff Member at the Institute for Defense Analyses since 1998. She has done research at both Los Alamos and NRL in Astrophysics. She is currently working as a researcher for the DoD and advises on a variety of defense-related technical issues. Cindy

has won various awards for research and community service, and has published over 50 articles in physics and defense-related venues. She has organized workshops and given invited talks within the defense community to educate military planners on technical issues.

Statement:

I would like the opportunity to represent two constituencies in FIAP – young, recent Ph.D.'s, and researchers in Defense-related industries. In addition to young Ph.D.'s climbing the academic career ladder, the APS is made up more and more of people such as myself who are no longer doing fundamental research but nevertheless remain actively interested in the APS I would like to help the FIAP reach out to young people in both traditional and non-traditional career paths.

There is an urgent need to bridge the gap between the physics and defense communities. If elected, I would organize a session at the APS meetings about some of the open technical questions of interest in defense. In addition I would act as a resource for both communities. Lastly, I would assist the committee in identifying deserving Physicists in defense who should be considered for APS fellow election.

Elias Towe, Carnegie Mellon University

**Bio:**

Elias Towe received all his degrees (S.B., 1981, S.M., 1981, and Ph.D., 1987) from MIT. During graduate school, he worked as a visiting MTS at Bell Laboratories. He is currently a Professor of Electrical and Computer Engineering, and a Professor of Materials Science and Engineering at Carnegie Mellon University. He is the author and co-author of over 100 papers, and the editor of a book. His research interests are in photonics. From February 1997 to March 2001, he was on leave at the Defense Advanced Research Projects Agency, where he led the Agency's efforts in photonics and optoelectronics.

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Statement

FIAP will increasingly become much more important to APS than it has ever been. This is because of the rapid pace of technological change, and the diminished role that Industry is playing in the development of basic physics knowledge. FIAP will increasingly be called upon to foster an appreciation of the interconnectedness of science and technology, and to help forge collaborations among academia, industry and government. While at DARPA, I managed teams of scientists from industry, university, and government, working on specific projects for the government (which were later transitioned to industry for manufacturing). This model of partnership will become more prevalent in the future. FIAP can help promote it as a viable way to solve real world problems, while at the same optimizing the use of scarce resources. I would like to see FIAP play a key role in fostering closer collaborations among the members of this research triangle.

A. G. Unil Perera, Georgia State University

**Bio:**

A. G. Unil Perera (U. of Colombo, Sri Lanka, B.Sc, 1981, U. of Pittsburgh, M.S (1983), Ph.D., Physics, 1987); Professor & graduate director of Physics, Georgia State University. Life member APS, member SPIE and IEEE. More than 80 papers, 4 book chapters and co-edited books.

Presented invited talks at APS, SPIE, ECS and IASTED conferences, served on many proposal review panels and reviewed numerous research proposals and journals, a patentee in the field. Detector work featured in the June 2001 and August 1992 "Newsbreaks" of the Laser Focus World, November 2000, Photonics Spectra, and "Review of Particle Properties" (LBL, 1994).

Statement:

One of the major tasks for FIAP will be to convince the basic and applied science communities that they are not independent areas, but each fosters the growth of the other. The importance of industrial connections to the university research community increases with each passing day. I think these connections are best promoted by involving the younger generation in science and technology projects thus developing enthusiastic scientists able to fit into the continuously changing and challenging scientific and technology-business environments. For this purpose, I would like to see increased participation of graduate students in FIAP activities such as special sessions and forums. In the last two APS meetings, I organized sessions, which included several student presentations. I would encourage FIAP support for student participation. Another important area for FIAP is disseminating science/technology advances to the general public, especially to our elected officials who make the funding decisions.

Herbert S. Bennett, National Institute of Standards and Technology



Bio:

Harvard University, A.B. (magna cum laude) and Ph.D., physics, 1958 and 1964, respectively; University of Maryland, M.S., 1960; U.S. Navy, 1958-1960; Atomic Energy Research Establishment, England, 1965; University of Illinois, 1966; and Materials Research Division Director, National Science Foundation, 1978-1980. Presently a NIST Fellow and Executive Advisor at the National

Institute of Standards and Technology (NIST). Honors include Fellow of the Institute of Electrical and Electronics Engineers; Maryland's Outstanding Young Scientist Award, 1970; and Department of Commerce Science and Technology Fellowship, 1972. Published over 120 technical papers on electronics, optoelectronics, and video technologies.

Statement:

If I were elected a Member-at-Large, I would work towards 1) improving communications among physicists in academia, industry, and government to make FIAP successes, goals, and plans more widely known and 2) demonstrating the value added by physicists to the industrial sector. I would work to promote increased liaison with the local APS Sections; to establish a distinguished lecturer program for communicating the excitement of industrial applications of physics to attendees of APS Section meetings; and to explore ways to foster enhanced exchanges among selected IEEE Societies and the FIAP. I would also strive to make industrial physics research well known to the public. The foregoing would be in addition to normal duties of helping to organize FIAP sessions and special events for the March APS meeting.

Roger F. Hoyt, IBM



Bio:

Roger F. Hoyt is currently Manager of Quality Programs with the IBM Storage Technology Division. He holds a B.S. in Physics from the University of Illinois ('71) and M.S. ('75) and Ph.D. ('78) in Physics from UC San Diego. From 1982-1995 he was with IBM Research studying magnetic recording physics & devices, and managed departments in the areas of recording physics, head-disk interface, channels, advanced storage, and has been Research Program Director for Division-wide work in printing and storage manufacturing research. Dr. Hoyt is an IEEE Fellow, a member of the IBM Academy of Technology, Tau Beta Pi, and Sigma Xi.

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Statement:

I have been active in the Santa Clara Valley chapter of IEEE Magnetics Society, serving as secretary, treasurer, and chair. I have been Editor in Chief of the IEEE Press, Director of the IEEE San Francisco Bay Area Council, a member of the NRC review panel of the NIST Electronics and Electrical Engineering Laboratory and an IEEE Third Millennium Medal recipient. FIAP offers to APS members a tremendous opportunity to improve contacts, enhance communications, identify opportunities for career growth, and become more aware of the wide spectrum of opportunities for trained physicists in applied and industrial careers. As a member of the Executive Committee, I would work to help enhance the awareness of FIAP amongst the physics and engineering community and most importantly, to help make young people aware of the opportunities and personal rewards in pursuing physics careers outside of academia.

FIAP Executive Committee

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<http://www.aps.org/FIAP/newsletters.html>

