2009 APS March Meeting
Pittsburgh, Pennsylvania
http://www.aps.org/meetings/march/index.cfm
Monday, March 16, 2009 11:15AM - 2:15PM –
Session B6 FIP: Panel Discussion: Physics in Africa 406

11:15AM B6.00001 On the differences between theories of conventional and high temperature superconductors. ALEXANDER ANIMALU, University of Nigeria — After years of successful application of the pseudo and model potential representation of electronphonon interaction to conventional (Bardeen-Cooper-Schrieffer) theory of superconductivity, we have developed a generalization (called "isosuperconductivity") that not only explains the differences between conventional and highTc in the cuprates and other materials but has enough predictive power to permit the current search for room temperature superconductors. We present a review of more than 30 years of effort and progress report on current research activities in this field.

11:51AM B6.00002 Physics in Africa: The Case of South Africa. MZAMO P. MANGALISO, National Research Foundation, South Africa & University of Massachusetts, Amherst — South Africa plays a special role in building science throughout Africa. The areas of science, particularly those related to physics, which are being developed, will be described together with the involvement of other African countries. Data will be presented that demonstrate the high attrition rate that exists especially in the science track PhD pipeline and highlight the bottleneck at the honors (fourth year) level. Programs designed to overcome this will be presented, and their success discussed. Thoughts on how to go about expanding the interactions between US scientists and South African scientists as well as with African scientists will be presented.

12:27PM B6.00003 Physics in Africa: The Case of Senegal. NDEYE ARAME BOYE-FAYE, University Cheikh Anta Diop, Denegal — For many years, the research activity in Senegal has been managed through the division of the Ministry of Education. In 2004 the current government established a full-fledged Ministry of Research. This has led to a renewed focus on the organization of the funding of research in Senegal. One important issue to underline is the lack of a budget line devoted to research in most of the local institutions, distinct from support for academic purposes. As a result, the research activity is funded through direct support from the government or thanks to international programs. The main tool for the government to support key research directions is the FIRST program, with a yearly budget of $700,000 US. For the last call for projects, up to 12 projects have been funded, which translates to about $58,000 US per project. The other option for research funding lies in different international programs specifically aimed at institutions within the least developed countries. The dominant ones are provided by the French-speaking community, the French-supported AIRE, the European Union framework and ICTP Abdus Salam Centre. In this general context of limited resources, physics is the least supported discipline both in terms of researchers and active laboratories. As a result, particular efforts have to be made to increase the impact of physics and the role of physicists so as to enable them to claim their proper role as the major player in making science and technology the driving forces in the development process of Africa.

1:03PM B6.00004 Physics in Africa: The Case of Congo. BERNARD M'PASSI-MABIALA, Marien NGouabi University — We will present a review on the state of research and education in physics in the Republic of Congo, one developing country in Central Africa. Special emphasis will be placed on the School of Science of the Marien NGouabi University located in the capital, Brazzaville. We will also discuss the impact of the Physics Department within this University as a whole. One of the main problems in Africa is the serious lack of equipment to provide adequate hands-on trainings for students and for faculty to perform forefront research. To illustrate strategies for the development of Physics in the continent, we will describe some ongoing inter-continental collaborations between our university and some neighboring countries, along with some ways for expanding the framework of the interactions between US and African physicists.

Tuesday, March 17, 2009 11:15AM - 2:26PM –

11:15AM J4.00001 Session Introduction, CO-CHAIR: ELIANE LESSNER, APS Committee on the Status of Women in Physics — A panel discussion session providing a worldwide assessment of the status and experiences of women in physics, paying attention to the different cultures and environments they work in and to how the age of the physicist affects their perspective. We will hear about women physicists in Korea in particular and Asia in general, in Egypt in particular and Africa in general, and in the Caribbean. Six invited speakers will present analyses of the progress being made in promoting women physicists from their personal experiences and as assessed from their participation in the Third International Conference on Women In Physics (ICWIP2008) convened in Seoul, Korea in October 2008. From Albania to Zimbabwe, with representation of all the continents, ICWIP2008 congregated 283 women and men physicists from 57 countries to share the participants' scientific accomplishments and evaluate international progress in improving the status of women in physics. This three-hour session is organized jointly by the Committee on the Status of Women in Physics of the APS (CSWP) and the Forum on International Physics of the APS (FIP). Audience participation in the panel discussion will be strongly encouraged.

11:20AM J4.00002 Looking back, Looking Forward: An International Perspective. JUDY FRANZ, American Physical Society — The recent IUPAP International Conference on Woman in Physics (ICWIP) held in Korea brought women physicists together from all over the world. It was a wonderful conference and the third in a series that began in 2002. How did these conferences originate? What was their driving force? What has changed in the intervening 6 years? I will give some of the history and my experiences in the role of secretary general and the first female officer of IUPAP. I will also share some thoughts about the future, and what must be done to make sure that the situation for women in physics continues to improve around the world.
11:45AM J4.00003 The 3rd International Conference on Women in Physics: Global Perspectives, Common Concerns, Worldwide Views

YEVGENIYA V. ZASTAVKER, Franklin W. Olin College of Engineering — The 3rd International Conference on Women in Physics (ICWIP), held in Seoul, Korea, in October 2008, brought together 300 participants from 57 countries, including a diverse 22-member U.S. Delegation, for a 3-day summit of stimulating discussions, thought-provoking presentations, inspirational posters, and networking. Held under the auspices of the Working Group on Women in Physics of the International Union of Pure and Applied Physics (IUPAP), this meeting built on the successes of the 1st (Paris, 2002) and 2nd (Rio de Janeiro, 2005) Conferences and further clarified the importance of diversifying the field of physics worldwide. Although considerable progress has been made since 2002, it was clear that the global scientific workforce is still under-utilizing a large percentage of the available female talent pool. If human society is to benefit to its fullest from various contributions that the field of physics can offer in addressing global issues of economic crisis, energy, environment, water, health, poverty, and hunger, women of all races and nationalities need to become fully included and engaged in the national and international physical community. To address these and many other issues, the ICWIP unanimously approved a five-part resolution to IUPAP recommending actions to promote the recruitment, retention, and advancement of women in physics and related fields.

12:10PM J4.00004 Marshak Lectureship Talk: Women in Physics in Egypt and the Arab World

KARIMAT EL SAYED, Physics Department, Faculty of Science, Ain-shams University — Until the end of the 19th Century Science was not classified into different disciplines. The first woman named in the history of science was Merit Ptah (2700 BC) in Egypt’s Valley of the Kings. In the new Egypt the first girls’ school started in Cairo in 1873 and the first University in 1908. Only a few girls attended the University at that time, mainly studying the humanities. The first Egyptian woman physicist graduated in 1940 and received her PhD in nuclear physics in the USA. Nowadays the number of women in physics is increasing in all branches of physics, some of them are senior managers and others have been decorated with various prizes. In this talk some statistics will be given to show the percentage of women in physics in relation to other fields of science in Egypt. In Saudi Arabia the first girls’ school started in 1964 and the first college for women, which was a section of King Abdul-Aziz University (where education is not mixed), started in 1975. I was the founder of the Physics Department of this women’s section. Egyptians have played significant roles in teaching schoolchildren and university students of both sexes in all the Arab countries; in the Arab Emirates, the Gulf States, Libya, Lebanon, Syria, and Jordan. But with respect to Algeria, Tunisia and Morocco, our role was limited, since classes are taught in French. Arab women living in the countries located east of Egypt still have many difficulties facing them, needing to overcome many technical, academic, and social problems, while women in the countries located west of Egypt have fewer problems. There were many problems in the early days of education in Egypt but the women of Egypt worked hard to gain the same rights as men and were able to pave the way for all Arab women. I myself met many difficulties in my early days. This talk will also describe the impact of the regional conference on Women in Physics in Africa and Middle East, which was held in Cairo in 2007.

12:35PM J4.00005 Women Physicists in Asia

YOUNG KEE KIM, Fermi National Accelerator Laboratory and University of Chicago — I will present the history of women scientists in Asian countries and discuss the current status and experiences from women physicists, and ways to create a better future for women in physics.

1:11PM J4.00006 Women in Physics: A Caribbean Perspective

KANDICE TANNER, University of California, Berkeley — This paper is concerned with aspects of post-secondary education of women in physics in the Caribbean, focusing more specifically on the main university campuses in Trinidad and Tobago, Jamaica, and Barbados. Within this framework, there are three institutions of tertiary education that provide for undergraduate and post-graduate studies in physics. On average, the bachelor-level graduating class is roughly 40% female. A great majority of these students go on to seek master’s degrees in engineering. Among those enrolled in graduate programs featuring research in astronomy, materials science, environmental physics, medical physics, and quantum physics, 58% are female. Significant numbers of women from the selected countries and from the Caribbean region are engaged in bachelor and doctoral programs in physics abroad, but no formal survey is available to provide the relevant quantitative information. However, an attempt will be made to quantify this component. Based on personal experience, a comparison will be made between domestic and foreign educational pathways, in terms of access to resources, level of research training, and occupational opportunities following graduation.

1:36PM J4.00007 Panel Discussion

MODERATOR: CHERRILL SPENCER, SLAC National Accelerator Laboratory —
Panelists: Yevgeniya Zastaver, Franklin W. Olin College of Engineering
Young-Kee Kim, Fermi National Accelerator Facility and University of Chicago
Karimat El-Sayed, AniShams University, Cairo, Egypt
Renee Horton, University of Alabama
Kandice Tanner, University of California, Berkeley

Wednesday, March 18, 2009 2:30PM - 5:30PM –
Session T6 FIP FGSA: Panel Discussion: Preparation of Graduate Students for Careers in a Globalized World

2:30PM T6.00001 Preparing for Change: Challenges and Opportunities in a Global World

SABINE O’HARA, Institute of International Education — Our world is becoming increasingly global. This may sound like a cliché, yet it is true nonetheless, and poses unprecedented challenges for graduate education. For the new generation of researchers, teachers and professionals to be successful they must be prepared in more than the content area of their chosen field. They must also acquire proficiency in global awareness, cultural literacy, multicultural teamwork and language facility. These global skill sets form the basis for effective multicultural collaboration and will become increasingly important even for those who do not intend to study or work abroad. Knowledge has become more portable in the internet age; large data bases and reports can be accessed in real time from various locations around the globe; information is exchanged in multifaceted knowledge networks; collaborative research takes place within and outside of the traditional venue of the research university in the private sector, research institutes, and associations; research networks span multiple disciplines as progress invariably occurs at the intersection of previously discrete fields of inquiry. Global collaboration thus is no longer dependent on the physical proximity of collaborators but can take place anywhere any time. This then requires yet another set of skills, namely the ability to adapt to change, exhibit flexibility and transfer skills to a range of contexts and applications. Effective graduate education must address these realities and expose students to learning opportunities that will enable them to acquire these much needed global skills sets.

3:06PM T6.00002 International Experiences for Graduate Students: Opportunities and Challenges

AMY FLATTEN, APS Director of International Affairs — Graduate students are often well aware that their physics careers may involve international partnerships at some point. Many students, however, wish to pursue international experiences during their graduate physics training. The speaker will discuss some of the international opportunities available to graduate students and provide insights into some potential challenges of engaging internationally.
3:30PM T6.00003 Graduate studies in a globalized world, FATIHA BENMOKHTAR, Carnegie Mellon — In our days physics research, experiment and theory, is done in one way or another in a framework of an international collaboration. As an experimental Medium Energy physicist, I will be talking about my experience in working within international collaborations for more than twelve years. I will go through a couple of questions graduates students should be asking: How is the work environment for a graduate student doing his or her research within these collaborations? What about language barriers? Can they be independent in their analysis? What will happen after getting their PhD.s? – and more.

3:54PM T6.00004 Physics Internationally From the Industrial Perspective, T. VENKATESAN, National University of Singapore — Physicists traditionally get employed by academia, National Labs and industry. The investment of multi-national companies in R&D and manufacturing operations globally has been accelerating owing to availability of trained human resources and the economy of operation. This has created tremendous opportunities for candidates with global experience as opposed to a highly localized education. In the last decade, the investments made by Asian academic institutions in education and research has seen a significant increase creating opportunities for Graduate students and researchers alike in parts of the world other than US and Europe, the traditional destinations for students and researchers over the last several decades. Many Asian universities are hiring a diverse faculty from all over the world as opposed to hiring from local talent pools. Many of the Asian countries are focusing on creating local hitech economies by fostering global entrepreneurship programs. In my talk I will discuss this globalization phenomenon with specific examples from both academia and industry. I will also discuss strategies for academic institutions in terms of making the appropriate modification to their programs to deal with this inevitable evolution.

4:18PM T6.00005 I2CAM and ICAM: Physics Internationally, DANIEL COX, University of California Davis — The Institute for Complex Adaptive Matter (ICAM) through the National Science Foundation sponsored International Institute for Complex Adaptive Matter (I2CAM) has, since its formal inception in 2002, grown into a 60+ branch international scientific network devoted to the study of emergent phenomena in correlated electron matter, soft matter, and biological matter. We nucleate forefront research through a blend of discussion oriented workshops (at least 50% of the time for discussion), exchange awards for junior scientists to initiate collaborations between two groups, travel awards for junior scientists to present research work or carry out brief research, and schools on topical subject matter. We also supplement our federal funding with contributions from each branch which support postdoctoral and senior scientist fellowships and unique science outreach activities such as an online science museum (The Emergent Universe). We have also outreach activities to universities with substantial numbers of underrepresented groups in the sciences and to outstanding science institutes in emerging nations. I will review what has worked well with ICAM/I2CAM, how we started and grew, and how we have inspired similar programs in other countries. (This research supported by NSF Grants DMR-0645461 and DMR-0456669).

4:42PM T6.00006 Panel Discussion —