



Pan-American Initiatives in Scientific Cooperation with the ICTP: An Update

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Outline

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- Regional Initiative in Science and Education (RISE), Arlen Hastings
- Proposal

Brief Bio

- Licenciatura en Física 1979, University of Panama
- Ph.D. 1986 University of Texas Theory Group (Steven Weinberg; Philip Candelas)
- Several postdoctoral/Research scientist/lecturer positions (Rockefeller University, University of Texas, Vanderbilt University, CERN, Institute for Advanced Study at Princeton, Thomas Jefferson Lab., others)
- Currently associate professor of physics; in charge of Pan-American Initiatives in science, technology and innovation at the University of Houston

Brief Bio

- Some 20+ years working in developing Pan-American cooperation in physics
 1. Pan-American Association for Physics (Associate director)
 2. World Laboratory Center for Cooperation in S&T, University of Houston (1998-2006); 14 postdocs in physics, chemistry and biology from Argentina, Brazil, Cuba, Mexico and Peru
 3. 2009 John Wheatley Award and Fellowship by American Physical Society
 4. Currently working with ICTP In the Americas (mainly by promoting USA-Latin America cooperation)

Houston Area

- Agreement between the University of Houston and the ICTP to bring Diploma students into physics Ph.D. program. Two are currently at the UH and at least two more coming in the fall 2011:
 - Merzu Kebede (Ethiopia, Medical Physics)
 - Keshav Shetha (Nepal, biophysics)
 - Belinda Ahiabu (Cameroon, interested in seismic physics)
 - Epie Emmanuel Njumbe (Cameroon, interested in seismic physics)
- Planning for “Follow-up” program for Diploma students at the UH. The purpose is to include scientists from the countries of origin of the Diploma students in their Ph.D. committees and promote collaborations between the UH scientists and scientists from the Developing countries with the goal of maintaining the connections with the students as they progress in their scientific careers.

Houston Area

- A proposal is being prepared to be submitted to an important international bank for co-support of Latin-American graduate students in the physics department at the University of Houston and possibly the University of Texas. Program will be joint with the ICTP. A “Follow-up” component will be an important part of this program.
- Conversations with the UH and other institutions in Houston to create an ICTP-USA are continuing. The new Dean of the college of Natural Sciences and Mathematics at the UH, Professor Mark Smith, will contribute with some seed money and institutional support to promote Pan-American Initiatives in the college, including with the ICTP.

Houston Area

- Conversations are being held with large multinational corporations in oil, gas and mining based in Houston and elsewhere, to create one or more courses to be taught in Houston jointly with the ICTP in areas of interest to the companies, including topics in nonlinear inversion and also renewable sources of energy. The tentative content for a course on nonlinear inversion techniques in geophysics is currently under discussion. Support would come from the companies and the ICTP.

Elsewhere in the USA: Vanderbilt University

- At Vanderbilt University, Nashville, Tennessee, USA, Professors David Ernst and Leonard Feldman, with guidance and input from Carlos Ordonez, are investigating interest in establishing the ICTP-USA centered at Vanderbilt. They are in the process of constructing a case and presenting it to the appropriate faculty and administrators. Seed money from the University as well as from private donors is being sought. This center in Nashville would work in coordination with the one to be established in Houston.

Regional Initiative in Science and Education (RISE) -- Arlen Hastings, Science Initiative Group (IAS, Princeton)

- Supports university-based PhD/MSc research & training networks in science & engineering
- Currently only in sub-Saharan Africa; could be adapted for other world regions
- Medium-term goal: increase number & quality of academic staff in African universities
- Longer-term goal: build Africa's STI capacity
- Designed in 2007 with extensive input from stakeholders; established in 2008
- 5 networks currently supported; selected by international committee from 48 proposals

How It Works

- Each network is in problem area relevant to region's development (e.g. natural products, water resources)
- Each consists of university departments in at least 3 different countries in the region
- Some students are existing academic staff seeking to upgrade qualifications
- Students receive degree from home university but have access to expertise (co-supervisors) & resources (scientific equipment, courses) at all network universities
- Student participation in scientific conferences & other group activities encouraged/supported

Funding & Administration

- RISE-Africa funded by Carnegie Corporation grant through 2013; discussions underway with World Bank & other partners re sustainability & expansion
- Administered by Science Initiative Group at Institute for Advanced Study in Princeton, NJ, USA
- Africa-based co-administrator may eventually assume full responsibility for program
- Each network has its own secretariat at one member university; substantial autonomy on academic, administrative & financial management
- Each network receives \$800,000 over 3 years; majority for PhD/MSc training. Now in second 3-year phase (2011-2013)

Early Results (a sampling)

- Completed: 2 post-docs, 1 PhD, 9 MSc's
- Currently enrolled: 43 PhD's, 29 MSc's
- Workshop proceedings, conference papers, journal publications
- At least 5 patent applications submitted
- Acquisition of major scientific instrumentation with pooled funds; also benefits non-RISE researchers
- Improved collaboration among universities; creation of culture of co-supervision
- Creation of joint MSc curriculum in natural products involving 3 universities
- Increased profile of African research
- More than \$2 million from other funding sources, leveraged by RISE

Proposal:

- To develop RISELA in a collaborative effort (ICTP-SIG+ others) for Central America and the Caribbean and some of the scientifically less-developed countries in South America