CoHemis... update

Overcoming through cooperation

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CoHemis Directors'

Fruitful Trip to Washington

In December 1995, CoHemis Co-directors Dr. Luis F. Pumarada-O'Neill and Dr. Jorge Vélez-Arocho visited Federal agencies, Congressional offices and research institutes in Washington DC to reinforce or establish personal contacts that may increase collaborations between US trade, science, and technology concerns and UPRM and CoHemis. Dr. Luis Pumarada, as Associate Director of the UPRM Research & Development Center, took advantage of this trip to present preproposals produced by UPRM faculty to potential sponsors. This visit has opened a window to potential joint collaborations, memorandums of understanding, and sponsors; besides strengthening CoHemis' potential role as participant in agency advisory boards and public hearings by Congressional committees related to scientific collaborations within the hemisphere.

Pumarada and Vélez-Arocho visited the Armed Forces Institute of Pathology (AFIP) and the National Institute of Standards and Technology (NIST) to discuss future projects with CoHemis. In AFIP, the meeting focused on the CoHemis Consortium and its capability to collaborate in the implementation of joint UPRM and AFIP objectives for developing an environmental health center in Puerto Rico and conducting a symposium on metal ions. NIST is evaluating the possibility of a joint collaboration with CoHemis for organizing and conducting hemispheric training in metrology and quality standards.

To reinforce the presence of UPR and its value to US domestic and foreign policies, CoHemis Co-Directors visited the offices of the following Hispanic Congressmen: José Serrano, Nydia Velázquez, Luis Gutiérrez, Xavier Becerra, and Ed Pastor. There they met with their legislative aids (and with Luis Gutiérrez in person). The aides demonstrated great interest in having within their districts collaborative arrangements similar to the Argonne National Laboratories-

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Embraces Three More Countries

The CoHemis Consortium Keeps Growing

The Consortium for Hemispherical Cooperation in Research and Education in Engineering and Applied Science (CoHemis) welcomes four new members: the University of Guyana, Instituto Tecnológico de Santo Domingo (INTEC, Dominican Republic), Lehigh University, and Universidad de Costa Rica.

The CoHemis Consortium is a hemispheric network of universities, research centers, and other R&D entities interested in facilitating institutional and professional exchanges among its members. This collaboration mechanism has allowed student and faculty internships, the organization of short courses with international resources, and the development of proposals for joint research projects. At present, 16 universities from the Americas, including 10 from Latin America and the Caribbean, and three US national laboratories belong to the Consortium.

Lehigh University in Bethlehem, Pennsylvania, has a strong department of industrial engineering. It harbors an NSF

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Congratulations!

CoHemis congratulates the 1995 Nobel Prize winner in Chemistry, Dr. Mario J. Molina, for his pioneering work on the chemistry of ozone depletion. This is the first time that the prize is awarded for environment-related work. Dr. Molina studied Chemical Engineering in the Universidad Autónoma Nacional de México (UNAM), and is currently Professor of Environmental Sciences at MIT.

INSIDE:

CoHemis Director Travels to Costa Rica

From September 8 to 19, 1995, CoHemis Director Dr. Luis Pumarada O'Neill traveled to the Republic of Costa Rica to identify possible joint collaborations. He consolidated CoHemis' relations with various department heads of the University of Costa Rica (UCR) in San José and visited some research units at UCR and other institutions.

At UCR, Pumarada met with Eng. Adolfo Soto, dean of the Faculty of Agronomy. They discussed possible exchanges and collaborations in food technology, extension, and 4-H programs. Pumarada also met with Eng. Jaime Sotela, director of the Civil Engineering School. Sotela showed interest in short courses and collaborations in environmental engineering, transportation, materials and structure laboratories, concrete, urban sustainable development, and infrastructure.

Doctor Pumarada exchanged ideas for future collaborations with the Electrical Engineering School's director, Eng. José Miguel Páez, and with the Engineering Research Institute's director, Eng. Flor de María Muñoz. She was interested in research collaborations with the UPRM College of Engineering in areas related to coasts, as well as in metrology and quality standards. Pumarada met with Dr. Manuel Murillo, director of the International Affairs and Internal Cooperation Office, and with Ismael Mazón, professor of Electrical Engineering and Costa Rica's CONICIT delegate to CoHemis.

As a result of these meetings, a few months later UCR joined the CoHemis Consortium. The university has 4,000 engineering students in several five-year programs, including agricultural engineering. An additional 300 students are currently pursuing master's degrees in engineering. UCR also offers degrees in Agricultural Sciences, Business Administration, Sciences, Arts, and Humanities, among others. Biology, Medicine, and Engineering are its strongest fields.

In this trip, Pumarada also visited the Tropical Agriculture Research and Higher Education Center (CATIE) and the "Escuela de Agricultura de la Región Tropical Húmeda" (EARTH). CATIE conducts research and postgraduate studies in agricultural science, resources management, and environment. EARTH has 400 undergraduate students from different countries. It also has an extension program and excellent facilities for short courses.•

International Workshop on Composite Materials:

CoHemis Helps in Completing the Latin American Delegation

UPRM's Civil Engineering professor Dr. Houssam Toutanji will lead the five-person Latin American delegation that will participate in the "International Workshop on Advanced Composites in Construction" (IRACC 1996) to be held in Bologna, Italy, from June 8 to 11, 1996. With the help of the CoHemis Center, Toutanji identified two of the four researchers with experience in composite materials that will go with him to the workshop. This was done by means of a call sent by e-mail to the Latin American and Caribbean members of the CoHemis Consortium.

The researchers that will represent Latin America and the Caribbean in the IRACC 1996 are: Dr. Ana María Peña, from the Pontificia Universidad Católica de Chile, Dr. Florencia Serranía, from the Engineering Institute of the Universidad Nacional Autónoma de México, Dr. Silvio Delvasto, from the Engineering Faculty of the Universidad del Valle in Cali, Colombia, and Dr. Giuseppe B. Guimaraes, from the Pontificia Universidad Católica of Río de Janeiro, Brazil.•

Collaborative Agreement:

Worcester Polytechnic Institute and UPRM

Last November, UPRM signed a collaborative agreement with the Worcester Polytechnic Institute (WPI) of Massachusetts. Highlights of the agreement include research collaboration, faculty and student exchange, and the possibility of developing joint Ph.D. programs. Central to the agreement is the establishment of the WPI Collaboration and Projects Center, which will facilitate this collaborative effort.

The Center will be headquartered in Mayagüez, PR and headed by UPRM professors Hamid Davoodi, from Mechanical Engineering, and Ali Saffar, from Civil Engineering. It will provide opportunities for collaboration in many fields, including science, engineering, and humanities, through joint undergraduate and graduate projects between the WPI and UPRM faculty, involving students from both schools.

WPI is the third oldest private engineering college in the US, established since 1865. It has awarded graduate degrees since 1898, and is among the top 50 science universities in the nation in terms of percentage of undergraduates who receive doctorates. WPI offers masters' degrees in 16 disciplines, and doctorates in 14.•

CoHemis... update is the newsletter of **CoHemis,** the Center for Hemispherical Cooperation in Research and Education in Engineering and Applied Science of the University of Puerto Rico, Mayagüez Campus. ***CoHemis... update*** is published in English and Spanish and distributed free of charge to entities and individuals contributing to technology cooperation, evaluation, education, or research in the Americas.

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CoHemis Conference

Industry-Government-University Collaboration

The CoHemis Center organized a conference entitled "Industry, Government, and University for Economic Development," held on October 16 at the Auditorium of the PR Department of State. The same conference was presented on October 17 at UPRM. The speaker was Eng. Alberto Arcodaci, Director of the Petrochemical Complex of Bahía Blanca (PIDCOP) in Argentina. The presentations were co-sponsored by the PR Department of State and UPRM's Department of Chemical Engineering and the Research & Development Center.

From left to right: Luz L. Vega, CoHemis Coordinator; Dr. Walter Silva, CoHemis Co-Director; Dr. Jorge Veléz-Arocho, CoHemis Co-Director; Ing. Alberto Arcodaci PIDCOP Director; and Dr. Luis Pumarada, CoHemis Director .

Arcodaci explained the PLAPIQUI (Chemical Engineering Pilot Plant) / PIDCOP model, a successful joint effort of the scientific, academic, industrial, and government sectors, which he has been participating in. It supplies quality technology assistance, technology transfer, human resources education and training, and research and design services to the petrochemical plants of Bahía Blanca and to other industries in Argentina and in other Latin American countries. This collaboration mechanism has been operating for 18 years in the well-developed petrochemical region of Bahía Blanca. PLAPIQUI/PIDCOP is a joint effort of CONICYT (National Council for Research in Science and Technology) and the Universidad Nacional del Sur (UNS), with the support of the Petrochemical Complex of Bahía Blanca (PCBB) and a joint UN project involving UNDP and UNIDO.

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LARSIP Becoming More Multidisciplinary in Outlook and Vision

By: Peter Van der Meer, GIS Specialist, LARSIP

The Laboratory for Applied Remote Sensing and Image Processing (LARSIP), located within the UPRM Department of Electrical and Computer Engineering, has been facilitating several proposals during the last few months. One proposal to NASA, entitled "Modeling Climate Dynamics for the Caribbean," involves a total of seven principal investigators from seven different UPRM departments. The seven investigators, headed by Dr. Ramón E. Vásquez, director of LARSIP, put the proposal together in a truly multidisciplinary spirit, enhancing both the quality of the proposal and its possible outcomes.

The purpose of the proposal is to allow broad participation of Earth Scientists with data analysis and modeling expertise to complement ongoing interdisciplinary science investigations on Earth Observation System (EOS). This interdisciplinary approach will require analysis, interpretation and significant use of data from current and future NASA Earth Science missions, and will lead to improved understanding of the earth system.

The main objective of the proposal is to model atmospheric and oceanic chemical/physical processes in the Caribbean Basin. It is therefore expected that the proposed models can be used to predict long-term climate trends in the Caribbean region, as well as to assess its impact on global climate. The models will address the regional ocean/atmosphere dynamics simultaneously, including atmospheric chemistry. The estimated cost of this proposal is $1,019,501 over a three year period.

A second proposal was in the form of a position paper prepared by a group of nine principal investigators from seven departments, also headed by Dr. Vásquez. The paper was submitted to the office of Naval Research in Arlington, Virginia with the title "Modeling the Coastal Marine Boundary Layer in the Caribbean Using Remote Sensing." The models will have the capability of conducting short-and-long-term prediction of the marine boundary layer. In addition, short-and-long-term impact of natural and anthropogenic effects will be assessed using remote sensing technology such as radar, satellite, airborne, and ancillary data. The estimated costs of this research effort is $4,927,465 over a five year period.

Additional information concerning these proposals can be obtained by contacting LARSIP at (787) 832-4040, ext. 3753 or 3510, or by E-mail at pvander@rmece17.upr.clu.edu.•

Conference Series on Challenges to Planning

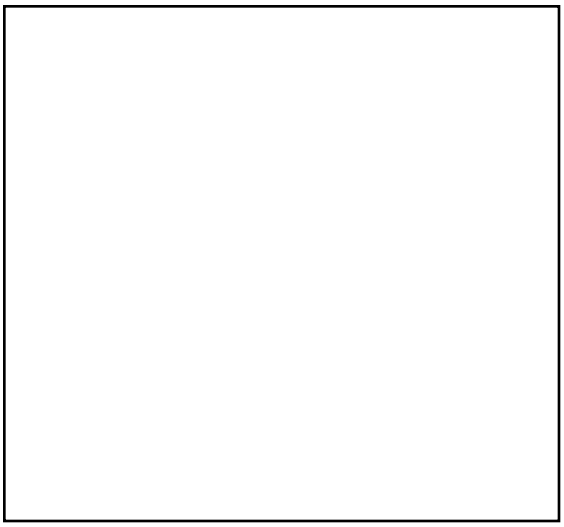
ENGINEERING, SOCIETY, AND ENVIRONMENT

A conference series on challenges to planning - the need to harmonize engineering, society, and environment- took place at the Mayagüez and Río Piedras Campuses of the University of Puerto Rico in December, 1995. The conferences were conducted by Eng. Mauricio Ramos, from the Center of Development Studies (CENDES) of the Universidad Central de Venezuela (UCV).

Mauricio Ramos is a UCV graduate in Chemical Engineering, with a Master's degree in Engineering Management from George Washington University. He is a professor and researcher in CENDES's Science and Technology and Technological Impact Assessment Area. CENDES is an institution focused on multidisciplinary studies and research related to economic development.

The series consisted of three conferences: "Technology Assessment and the Transfer of Hazardous Technology to Amazonia," "Dictatorship and Its Implications for Development Planning: the Case of Haiti," and "Engineering, Technology Assessment, and Sustainable Development, Where Do They Converge?"

The first conference addressed Technology Assessment in an effort to understand risky technology transfers that threaten health and environment within Amazonia. On this subject, Ramos said: "Some definitions of sustainable development explain the importance of selecting, acquiring, absorbing, adapting and using technologies that take into account the load capacity of the land (which is limited). This has been underestimated by most technology applications in Amazonia."



Eng. Mauricio Ramos

The second conference analyzed Haiti's socio-political system to identify the groundwork for future comprehensive planning. Ramos took the Duvalier era as a starting point to identify the main actors, their roles, and their current influence on planning for development and social change.

The third conference was held at UPRM and, again, at UPR Graduate Planning School in Río Piedras. In those presentations, Mauricio Ramos urged engineers and other technology professionals to engage in decision-making and in educating themselves and society as a whole about sustainable development. He also emphasized the need to develop new metrics and economic-environmental analyses, produce and adapt new technologies and sustainable processes, and focus on multidisciplinary work.

Mauricio Ramos also offered a presentation on CENDES, and talked about its graduate courses, consulting services for public and private institutions, and joint collaborations. For more information about CENDES, call or fax (58-2) 752-3089.•

Lehigh University's President:

Peter Likins on Research and Development

Dr. Peter Likins, President of Lehigh University –a member of the CoHemis Consortium– addressed the discussion of segregation of government and industry in the prestigious section "Last Word" of the October issue of PRISM, the magazine of the American Society for Engineering Education.

"We need to recognize that our original model that states that economic benefits directly follow basic scientific research has been displaced by a much more complex economic model, one with feedback loops that form an evolution of ideas that, if all goes well, leads to commercial success," he emphasized.

Dr. Likins recognizes that the US "historically has had a deep belief in the separation of government and industry" but that today's environment requires a different paradigm to construct industrial policy. A paradigm that is based on a "pragmatic basis for defining the best role of government in the economic development of our nation."

Finally, Dr. Likins concludes that "something has to happen if this nation is going to meet the challenges of the global economy, and it's going to require all of us throughout our society to work in a different kind of partnership to accomplish these goals."

These ideas apply not only to the US, but also to many countries which want to compete successfully in a global economy as well.•

Collaboration Between Consortium Members:

Universidad Nacional de Córdoba and UPRM Enhance Research on Structures

Researchers from the Universidad Nacional de Córdoba (UNC) and UPRM have been investigating the mechanical behavior of stored materials and silos in a joint project sponsored by the Interamerican Development Bank (IDB). Professor Luis Godoy, from UPRM's Civil Engineering Department, is part of this effort for proposing improvements for the design of silos in Argentina and cylinders in Puerto Rico.

Working in this project is Sergio Elaskar, a UNC doctoral student who spent last summer at UPRM in a two-month internship. Sergio worked on grain flow simulation and had the opportunity of using wind tunnel facilities not available at UNC. He also practiced with scale models of silos and cylinders, and offered a seminar about his work in these areas. The seminar was attended by structures professors who offered ideas and suggestions for improving Elaskar's work.

As Dr. Godoy expressed: "Elaskar took advantage of a network of help and goodwill that enhanced his education, a supporting network which, I believe, few universities provide." Godoy is convinced that student exchange is a key factor to education because it exposes students to a wide diversity of people with different ideas that enrich their intelect.

Professor Godoy was born in Argentina. He worked as professor and researcher at UNC for 10 years. In the last two years he has taught at UPRM, where he is conducting research on structures and applied mechanics. In 1995, Godoy coordinated the first Caterpillar-CoHemis short-course series in six Latin American countries.•

The Consortium in Action

The research project entitled "Nitrogen Biological Fixing and Biotechnological Management of Rhizosphere for Soybean and Corn," conducted by the Universidad Nacional de Río Cuarto (UNCR) in Argentina with the collaboration of UPRM, is underway thanks to the joint efforts of both Consortium member institutions.

With the collaboration of CoHemis, UNCR's project directors Dr. Susana Rosas and Eng. Néstor Correa will visit UPRM during the months of February and March 1996, to work with Dr. Eduardo Schröeder, from UPRM's Agronomy and Soils Department. Dr. Schröeder has been advising in the sampling, cultivation, and treatment of rhizobacteria, as well as providing biological material to URNC's Plant Physiology Laboratory. In this, their second internship at UPRM, the visitors will be identifying bacteria using Dr. Schröeder's laboratory facilities.•

University-Industry

CoHemis Participates in Regional Conference at Trinidad &Tobago

In September 1995, CoHemis visited Saint Augustine, Trinidad, to attend the "Regional Conference on University-Industry Cooperation in the Caribbean" (UNICC '95), hosted by the Institute of Engineering of the University of The West Indies (UWI) and UNESCO. CoHemis co-directors Dr. Jorge Vélez-Arocho and Dr. Walter Silva presented the paper entitled "Mechanisms for Fomenting the Development of the Caribbean," focused on the role of the CoHemis Consortium and its potential for helping to narrow the gap between the academia and the private sector.

(From left to right, Drs. Walter Silva (1st) and Jorge Vélez-Arocho (5th) with UWI participants Dr. Gurn Kochkar (4th), Dean of Engineering, and Mr. Clement Imbert (center), conference coordinator. Other participants from UWI and the University of Hartford also appear in the photo.)

Deforestation:

UNAM Professor Seeks Collaboration

CoHemis Consortium member Universidad Autónoma de México (UNAM) is conducting research on deforestation at southeast Mexico, for which it seeks collaboration of experienced researchers in this field. The project's main objectives are to develop effective methods for detecting deforested areas by means of satellite images and to elaborate simulation models of the deforestation process.

Project director Jean François Mas, from UNAM's Institute of Geography, is interested in joint research efforts with other institutions and in the exchange of ideas and results from previous investigations. Those willing to collaborate may contact Dr. Mas by telephone: (52-5) 616-4-44, fax: (52-5) 616-21-45, or e-mail: jmas@servidor.unam.mx.•

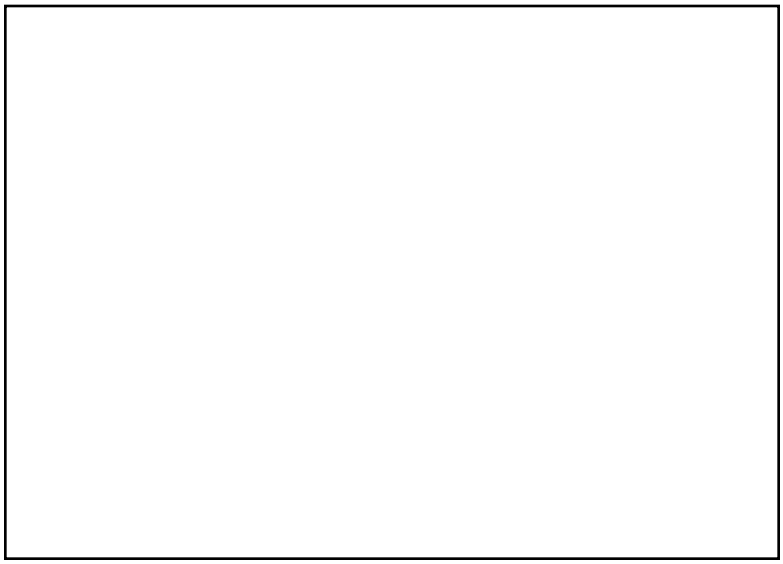
Colombian Student Receives Offer After CoHemis' Article

Publishing a hemispheric newsletter is a time- and money- consuming effort, but without a doubt, it's a worthy investment.

In our most recent feature "UPRM's Latin American Graduate Students" (Vol.5#3), we published an interview with Colombian graduate student Marcela Durán. Dr. Aris Georgakakos, leader of the Water Resources Group from the CoHemis Consortium member Georgia Institute of Technology, read the article about Marcela, her plans to pursue graduate studies, and her comment that neither UPRM nor any university in Colombia offered a doctorate in water resources management. To Marcela's surprise, Dr. Georgakakos contacted her through CoHemis and expressed his interest in offering her funding to continue doctoral studies at Georgia Tech. Marcela has just received the application forms and is in the process of requesting admission.•

UPRM's Latin American Graduate Students

In each issue, CoHemis...Update includes an interview with one of the hundreds of Latin American graduate students in engineering or sciences at UPRM.



Peruvian student Hugo Peláez in the grounds of the UPRM R&D Center

In January 1990, President Fujimori became president of Peru, and started a period of radical changes. Stricken by the political and economic crisis, Hugo Miguel Peláez-Carpio chose to study outside his country, hoping to return with a Ph.D. and enough research experience to contribute to a reborn democracy.

Hugo Peláez first heard about UPRM when a Peruvian friend studying Chemical Engineering told him about its graduate program and brought him an admission form. Born March 4, 1962 in Lima, he earned a Chemical Engineering undergraduate degree from the Universidad Nacional Mayor de San Marcos in Lima, the oldest university in the Americas (founded in 1551). Although he completed all Master's requirements, he was unable to finish a thesis due to financial reasons. It was then when Hugo decided to study in Puerto Rico, encouraged by an assistantship that the UPRM Chemical Engineering Department granted him.

At UPRM, Hugo worked on a thesis on transport mechanisms in the drying of granular materials, under the supervision of Dr. Guillermo Colón, and earned a Master's in Chemical Engineering. He decided to pursue a doctoral degree at UPRM because of the advantages of sharing the Spanish language, and also because the doctoral program on physical oceanography seemed specially appealing to him. "When I came to Puerto Rico, I meant to work on modeling and process simulations. That's why I became interested in a project conducted by the Department of Marine Sciences about ocean/atmosphere interaction and its impact on global change. Within that area, I saw the opportunity of exercising modeling by means of computers."

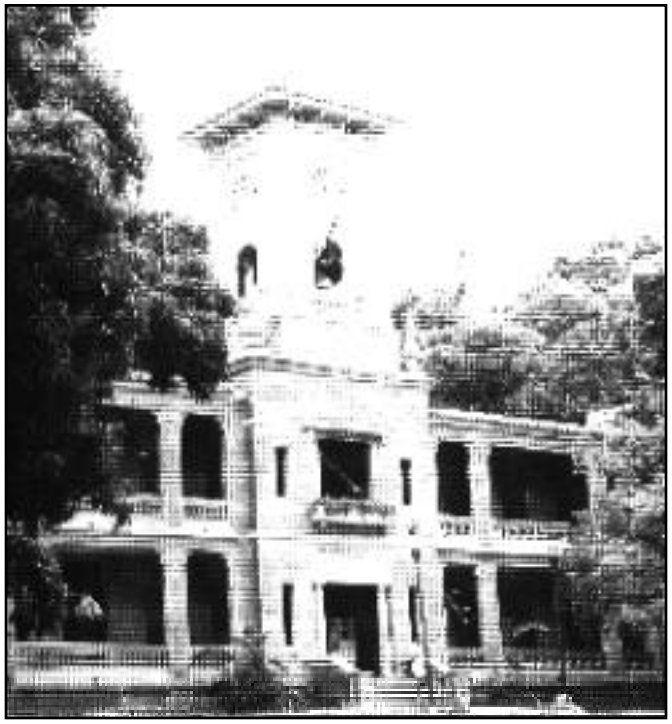
In the last two years, Hugo has been working towards a Doctor of Philosophy degree in Marine Sciences under the guidance of Dr. Jorge Capella. He also works with Dr. Juan López-Garriga and a team of researchers in the ocean/atmosphere interaction project, which is sponsored by NASA. As part of this project, Hugo has collaborated in the installation of a meteorologic station on one of the UPRM research boats. He is currently reviewing the information of a program that summarizes the main mathematical model for the project. This model has been elaborated by a professor from the Atmospheric Sciences Department of Colorado State University, a CoHemis Consortium member.

Hugo hopes to return to Peru to work in oceanography or Chemical Engineering, though he would rather combine them in an interdisciplinary project. He wishes to have the opportunity to teach at the Universidad de San Marcos and setting up his own research firm to assist industry. "The political-economic conditions in my country have improved...so there are many more opportunities for development," says Hugo, with some relief and a longing to return and "pay back his dues" to his family, his teachers, and his homeland.•

UPRM: An Option for Graduate Studies in Many Fields

For those interested in pursuing graduate studies in engineering, arts, sciences, agriculture, or business administration in a bilingual, tropical, and highly competitive setting, UPRM has excellent programs to offer.

The University of Puerto Rico, Mayagüez Campus (UPRM) is the unit of the Puerto Rico university system that includes Engineering, Agricultural and Marine Sciences, among other programs. It has the highest academic standards in the Commonwealth of Puerto Rico, and its programs are fully accredited by the proper US bodies. About 80% of its faculty speaks and teaches in Spanish, while the remaining do it in English. UPRM has developed working linkages with universities, research centers, and national councils for science and technology in most countries of the hemisphere. Although the main campus is located in Mayagüez, the university operates research stations around the island in Marine Sciences and Agriculture, which make it the largest campus of the University of Puerto Rico.



The José de Diego Building, historical monument founded in 1916.

UPRM offers graduate programs leading to the following degrees: Master of Arts in Hispanic Studies and English Education; Master of Business Administration; Master of Engineering in Chemical, Civil, Electrical, Management Systems, and Mechanical Engineering; and Master of Science in Agricultural Economics, Agricultural Education, Agronomy, Soils, Animal Industry, Crop Protection, Agricultural Extension, Horticulture, Food Science and Technology, Biology, Chemistry, Marine Sciences, Mathematics, and Physics. These programs comprise either 30 or 36 credits, depending on thesis requirements. There are also Doctor of Philosophy programs in Marine Sciences and Civil Engineering.

The requirements for admission to graduate studies are: holding a bachelor's degree from an accredited institution; having a working knowledge of the Spanish and English languages, and satisfying one of the following academic index requirements: (1) have a graduation grade point average of 2.5 (base 4.00) or better; (2) have a grade point average of 3.00 or better in the major field subjects; or (3) have approved a minimum of 60 credit hours during the last four semesters of the bachelor's program with a grade point average of 3.00 or better. Admission to the doctoral program will require the student to take a qualifying examination within the first year of studies after receiving a Master's degree (or the credit-hour equivalent). The registration fees for US citizens non-residents of Puerto Rico are US$65 per credit, plus an additional sum equivalent to what a Puerto Rican students would have to pay in the public university of their state of origin. They also pay the applicable regular or special fees. For foreign students the tuition fees are $3,500 per year, plus applicable regular or special fees.

Those interested in being admitted to graduate studies at UPRM must file the application forms with the Office of Graduate Studies. The application should be completed by providing three letters of recommendation (preferably from college professors), three official transcripts of the students' academic record at every higher education institution attended, and the application fee (US$15). All application forms and credentials should be sent to Director, Office of Graduate Studies, University of Puerto Rico at Mayagüez, Mayagüez, PR 00681-5000. Applications must be completed on or before March 15 for admission in the first (fall) term, or, on or before September 15 for the second (spring) term.•

CoHemis' Panel on:

National Laboratory Summer Internships

On November 21, 1995, CoHemis presented to the UPRM community a panel discussion entitled "Personal Experiences in National Laboratory Summer Internships." The panel consisted of: Dr. Jorge González (Mechanical Engineering), who commented on his experiences in the national laboratories of Argonne and Sandía; Dr. Mario Ierkic (Electrical and Computer Engineering), who talked about Los Alamos and also about NASA's Marshal Space Center; and Dr. José Colucci (Chemical Engineering), who held a discussion on Sandía. One undergraduate and two graduate students completed the panel. They were Lizdabel Morales (Electrical Engineering), Rosa Barés (Chemical Engineering), and Jesús Cajigas (Chemistry).

The panel members focused on research opportunities, working conditions, potential problems, sightseeing, and other bits of information useful for faculty and students considering a summer research internship. All panelists judged their overall experiences as positive, especially in terms of research opportunities, publications, future projects for the faculty, and as a growth and educational experience for the students.•

UPRM Professor Receives NSF Award

The US National Science Foundation (NSF) awarded a "Career Development Award" to Dr. Houssam Toutanji, professor of the UPRM Civil Engineering Department. The prize, previously called the "Presidential Young Investigator Award," was announced in June 1995 in recognition of his achievements in research and education.

The NSF highlighted Dr. Toutanji's work in two research projects related to the development of new cementitious composites and fiber-reinforced cementitious composites, and a proposal for the development of an educational plan. This plan, entitled "Learning Through Research," involves undergraduate students in research activities conducted by the Civil Engineering Department.

"My goal is to promote a strong interest among talented undergraduates to go into graduate studies. I'm planning to include computers and practical research projects in course content, and to develop other activities that enhace the educational experience of students and improve our service to the community," Toutanji explained.

Toutanji earned his Master's degree in Structural Engineering from Northeastern University, Boston, and his Ph.D. in Materials Engineering from Worcester Polytechnic Institute. He recently edited the *Proceedings* of the conference "Repair and Rehabilitation of The Infrastructure of The Americas," which he organized in 1994 with the collaboration of CoHemis.•

Industry-Government...

On the academic side, PLAPIQUI is a unit of the UNS Department of Chemistry and Chemical Engineering. It offers undergraduate and graduate courses on Chemical Engineering. Since its creation, it has published more than 400 papers, theses, books and patents on industry-related areas. As Arcodaci pointed out, students in this program can expect to enter Latin American industry as soon as they graduate.

PIDCOP has produced about 2,000 technical reports under contract for more than 200 Latin American firms. This program covers the following areas: equipment and process engineering; polymer, catalyst and food technology; state-of-the-art laboratories operated by top-notch personnel; information services for management, professional, and technical personnel; training (continuing education, short courses); and development of engineering software.

Arcodaci explained that PLAPIQUI/PIDCOP's key to success has been to play the role of supplier. For this, Bahía Blanca provides the necessary conditions. Located in the province of Buenos Aires, it has an automated deep water commercial port and is a node for gas pipelines and communications, with good air and railroad connections. Besides being an export city for agricultural and livestock products, it is also an industrial region with significant petrochemical production.

PLAPIQUI was established in 1963 within the UNS. In 1973, UNS and CONICYT joined efforts to turn PLAPIQUI into a research center. By that time, the PCBB enterprises and scientific entities recognized the need for a high-tech research center to assist the public and private plants of the region. With that purpose, in 1977 PIDCOP was created with support from the PCBB enterprises and the UN programs.

Considering that this effort successfully puts together research, education, community service, international collaboration, and industry-academia-government cooperation, CoHemis, the UPRM Research and Development Center, and the Government of Puerto Rico invited Eng. Arcodaci to present this model. The conference attendees, including government and academia executives, showed great interest through their questions to the speaker.

Those interested in getting more information may call 0054-91-88-2541, fax 0054-91-88-3764, or contact Eng. Arcodaci by e-mail: arcodaci@criba.edu.ar.•

Guatemala:

CONCYT's Newsletter Available

The "Secretaría Nacional de Ciencia y Tecnología" of Guatemala published its first edition of the "Boletín del CONCYT" (the newsletter of the National Council of Science and Technology). Its purpose is to function as a bridge for communication among the members of the National Science and Technology System, which comprises public, private, and academic institutions engaged in scientific research and technology development in Guatemala.

On its first issue, the newsletter highlights main events developed by the "Secretaría Nacional de Ciencia y Tecnología." This issue is dedicated to CYTED (Latin American Program of Science and Technology for Development), which has contributed to Latin American science and technology development in the last ten years. Through CYTED, Guatemalan researchers have been able to work in international scientific joint projects.

For a copy of the "Boletín del CONCYT," write to Secretaría Nacional de Ciencia y Tecnología, 8a. Ave. 10-43 zona 1, 01001, Guatemala, CA; or send a fax to (502-2) 24-1-25.•

Washington...

UPRM-Roberto Clemente High School collaboration, initiated by CoHemis. They also offered to endorse UPRM's and CoHemis' future plans within the Hispanic Caucus. Pumarada and Vélez-Arocho also met with representatives of the PR Federal Affairs Administration; the UPR Washington lobby, Van Scoyoc Associates and The Implementation Group, Inc.; the PR Resident Commissioner, Carlos Romero Barceló; and the White House PR Initiatives Office.

Other contacts were established with the House of Representatives Science Committee; the Department of State, US Agency for International Development (USAID) Bureau for Latin America and the Caribbean; the House Science Subcommittee on Basic Research; and the White House Office of Science and Technology Policy (OSTP). These meetings addressed, among other issues, CoHemis' proficiency for testifying in Congressional hearings and participating in the advisory committees of agencies that could benefit from CoHemis' hemispheric perspective in science, education, and technology transfer matters.

At the National Science Foundation (NSF), Pumarada and Vélez-Arocho presented some UPRM faculty's preproposals and ideas to program directors and representatives of the following units: Curriculum and Laboratory Development; the Inter-American Institute for Global Change Research; Ethics and Values Studies Program, Studies on Science Technology and Society; Americas Program, Division of International Programs; Large Structures and Building Systems, Engineering Division; and the Chemical Engineering Program. They also made contact with a Brazilian intern from the Science and Technology Ministry of Brazil.

Other Federal agencies visited were the Department of Energy, the Department of Commerce, the Environmental Protection Agency and the Department of Agriculture. Pumarada and Vélez-Arocho also met with executives from the Topographic Engineering Center of the US Corps of Engineers and the Washington office of Argonne National Laboratories.•

A N N O U N C E M E N T S

World Renewable Energy Congress

The National Renewable Energy Laboratory (NREL) will host the World Renewable Energy Congress IV from June 15-21, 1996, in Denver, Colorado. Among the major sponsoring agents are CoHemis Consortium member Sandia National Laboratory, the Virgin Islands' Energy Office, the Caribbean Sustainable Development Centre, the Centre for Global Energy Studies, and the University of the Virgin Islands.

Energy experts from many countries will attend the Congress. Two professors from the University of the West Indies will participate as guest speakers. They are B. Persaud, from Jamaica, and Oliver Headley, from Barbados. The topics that will be addressed are: low energy architecture, photo voltaic technology, solar thermal applications, wind energy generation, biomass conversion, energy efficiency, energy saving in transportation, energy conservation, economics, policy, insurance and financing, institutional issues, and global, regional, and local environmental issues. Pre-registration to the conference is required. For information on registration, accommodation, transportation, and other details you may contact Mr. Jeri Wagner by telephone: (303) 275-4353, or fax: (303) 275-4320.•

Symposium on Remote Perception in Brazil

The VIII Brazilian Symposium on Remote Sensing will be held in Salvador, Brazil, from April 14 tru 19, 1996. Its purpose is to diseminate the results of previous remote perception and geoprocessing investigations, promote an exchange of experiences among users, and encourage collaboration among interested institutions.

The Symposium is sponsored by the Latin American Society of Remote Sensing Specialists and Space Information Systems (SELPER), the Brazilian National Institute of Space Investigations, and the Brazilian Association of Remote Sensing Laboratories. The topics to be discussed are: remote perception by means of microwaves; thematic applications of Landsat images; SPOT and NOAA; photometric applications; geoprocessing and data integration; new sensing systems; digital processing of remote sensing images; and education on remote perception and geoprocessing.

For more information, you may write to the following address: VII SBSR, INPE-Sector de Eventos, Av. dos Astronautas 1758-Cx. Postal 515, 12210-970-Sao Jose dos Campos, SP. You may also get information by telephone: (0123) 21.8543 / 22.9325, or e-mail: sbsr@ltid.inpe.br.•

BRIEFS

Book on Structural Behavior by UPRM Professor

Dr. Luis Godoy, from UPRM's Civil Engineering Department, has finished a book entitled "Thin-walled Structures with Structural Imperfections: Analysis and Behavior." The book will be published by Elsevier, from Oxford, England, and should be on sale by now.•

UPRM Professor is Reelected President of COPIMERA

In the last COPIMERA Confederation Meeting, Dr. Jairo F. Lascarro, from UPRM's Department of Mechanical Engineering, was reelected President of the Panamerican Confederation of Mechanical, Electrical and Related Branches of Engineering. The meeting took place at Panama City. Delegates from 20 member countries from the Americas attended this annual event.•

Computing Research Conference

UPRM's Electrical and Computer Engineering Department will hold the Computing Research Conference (CRC '96) on April 19, 1996, for undergraduate and graduate students involved in computing research work. The Center for Computing Research and Development (CECORD) and the National Science Foundation are sponsoring this conference, which will be held for the second occasion at UPRM.

CRC '96 will serve as a forum for the exchange of new ideas, concepts, and results from the following topics: computational mathematics, human computer interaction, virtual reality, computer-based simulation, parallel and distributed computing, neural networks, networking systems, information systems, signal processing, programming environments, informatics, and computational engineering. Students will present original work in pure and applied research in areas where computers play a significant role.

For more information, please contact Dr. Domingo Rodríguez at CECORD, by telephone: (787) 832-4040 ext. 2031, 3510 or 2237; fax: (787) 831-7564; or e-mail: domingo@dumont.upr.clu.edu.•

R&D Information Exchange

Please let ***CoHemis... update*** help you to exchange information, search for research partners and training opportunities abroad, sabbatical leave destinations, and however we may serve hemispheric solidarity and collaboration in science, technology and engineering. Feel free to send us your announcement or project for publication.

PUERTO RICO'S TELEPHONE AREA CODE HAS CHANGED TO (787)

If you want to be included in our newsletter mailing list for receiving ***CoHemis...update***, please fill out and return this form to: CoHemis, University of Puerto Rico, Mayaguez, Puerto Rico 00681-5000. You may send the same information by e-mail to: Cohemis_rum@rumac.upr.clu.edu.

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Consortium Keeps Growing...

research center on structures. It also offers a master's degree in Technology Management and has developed an efficient program of Long Distance Education.

The University of Guyana in Turkeyen, Guyana has seven faculties: Agriculture, Arts, Education, Health Sciences, Natural Sciences, Social Sciences, and Technology. There is also an institute of adult and continuing education and a multi-million dollar computer center for students and professors. The Faculty of Natural Sciences offers master's degrees in Chemistry and Forest Biology.

INTEC awards bachelor's degrees in the following areas: industrial, electrical, electronics and communications, mechanical, systems, and civil engineering; plus industrial design. The civil engineering program offers a master's degree in structural engineering.

For information about the Universidad de Costa Rica, please read the article "CoHemis Director Travels to Costa Rica" on page 2. Following, we include a list of member institutions and the delegates who liaison for the Consortium.

Colorado State University
Jorge Ramírez

Los Alamos National Laboratories
Alfred Sattelberger

Oak Ridge National Laboratory
David E. Reichle

Sandia National Laboratories
Néstor R. Ortiz

Georgia Institute of Technology
Emir José Macari

Instituto Tecnológico de Santo Domingo (INTEC)
Daniel Comarazamy

Lehigh University
Louis A. Martin-Vega

Universidad de Chile
Luis Ayala Riquelme

Universidad de Costa Rica
Manuel M. Murillo

Universidad de la República (Uruguay)
Daniel Panario

Universidad de los Andes-UNIANDES (Colombia)
Juan G. Saldarriaga

Universidad Nacional Autónoma de México
Dorotea Barnés

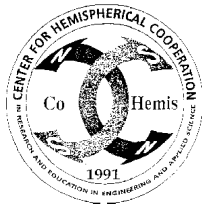
Universidad Nacional de Córdoba (Argentina)
Ricardo Rocca

Universidad Nacional de Río Cuarto (Argentina)
Héctor Garrera

Universidad Simón Bolívar (Venezuela)
Juan León Livinalli

University of Florida
Paul Thompson

University of Guyana
Leslie Lewis



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