

# The 28th Annual Meeting of the Philippine American Academy of Science and Engineering

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**T**he Philippine-American Academy of Science and Engineering (PAASE) was founded in 1980 to recognize the achievements of outstanding Filipino scientists and engineers and to promote the exchange of science and technology between the Philippines and the US. From a core group of 21 founding members, PAASE has since grown to more than 200 members mainly from the US, but also from the Philippines and other countries. Every year, PAASE holds its annual meeting to showcase recent scientific accomplishments and to promote and renew camaraderie among its members.

Since 1997, the annual conference has been held alternately between the US and the Philippines. On May 23-24, 2008, Dr. Pedro Jose of Georgetown University at Washington DC hosted the 28th Annual Meeting of PAASE. The event was deemed an overall success because of its record attendance of 108 participants from all over the US and the Philippines. Of these, 42 were PAASE members, 66 were non-members, guests and students. The US participants came from various states including California, Wisconsin, Ohio, Arkansas, Arizona, Pennsylvania, Illinois, New Jersey, Maryland, Virginia and Washington DC. Participation of Philippine-based attendees was at an all-time high of 18. Many of the participants came from the Metro Manila area including a contingent from the universities around Mendiola. There were also a few participants from Leyte, Batangas, Cavite, Ilocos Norte and Iloilo.

An annual event since 2000 is the granting of the Severino and Paz Koh (nee Founder's) Lectureship Awards in Science and Engineering in recognition of outstanding PAASE members who have distinguished themselves in their respective fields. The Science Lectureship Awardee for 2008 is Dr. Eduardo Padlan, a retired biophysicist from the National Institutes of Health who is currently an adjunct professor at the University of the Philippines Marine Science Institute in Diliman. Although the Koh award was for his lifetime work on the structure of antibodies, Dr. Padlan decided to talk about his latest research project, the design of new vaccines against constantly mutating pathogens. Many pathogens, like the flu virus, are able to evade the human immune response by constant mutation of their immunodominant epitopes. These immunodominant epitopes are what elicit the most response from our immune system. Dr. Padlan's proposed strategy is to use as vaccines the less antigenic versions of the pathogens' immunodominant epitopes, so that our immune system could react vigorously to other parts of the pathogen antigens. By using a computer program that he wrote, Dr. Padlan is able to monitor the decrease in

antigenicity as he makes specific amino acid changes in the immunodominant epitope sequences. Much of this latter work is being done in collaboration with researchers and students at UP Diliman.

The 2008 Engineering Lectureship Award was presented to Dr. Romel Gomez, professor of electrical engineering at the University of Maryland College Park. His lecture touched on the key principles of quantum mechanics and led up to his contributions to the development of a variety of tools, including the scanned probe microscopy, that have revealed the intricate details of objects at the nanometer length scale. He also used a variation of the microscope to reveal other physical properties such as surface magnetization which he related to electrical conduction involving the electron spin. At the end of his talk,



PHOTO BY FABRIAN DANRITO

Opening ceremonies at the 28th Annual PAASE Conference at Georgetown University.

Dr. Gomez showed how to use the principles of scanned probe microscopy to create artificial structures on solid surfaces with dimensions as small as one thousandth (1/1000) the diameter of a human hair. Dr. Gomez has worked on nanomaterials since the 1980s even before the term 'nanotechnology' became vogue. Nanomaterials refer to novel materials for massive data storage, faster and better computing devices and sensors for biomedical and other applications.

The 2-day Technical Program, which had a meeting theme of "Research as an Enterprise", covered a wide range of areas including biomedical research, imaging, sensing, energy, the environment, astrophysics and information technology. There were 11 plenary and

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Dr. John Mather, Nobel Laureate in Physics giving his keynote lecture on the Big Bang.

keynote lectures, 36 oral presentations in 2 parallel sessions and 10 posters. True to the diversity of PAASE, specific presentations dealt with Alzheimer's disease, quasars, bamboo waste remediation, natural products chemistry, geothermal energy, the human glycome, systems biology, the Filipino diaspora and quantum computing, among many varied topics. Light talks during lunch and dinner covered the Filipino identity by Dr. Pedro Jose of Georgetown University, how to get one's

published work noticed by the science news media by Dr. Maureen Rouhi of Chemical & Engineering News, and climate change by Dr. Josefino Comiso of NASA.

The Keynote Speaker on the second day of the conference was Dr. John C. Mather, winner of the 2006 Nobel Prize in Physics. This was easily one of the most anticipated talks at the PAASE meeting. Dr. Mather talked about the history of the universe starting with the Big Bang, how his involvement with NASA's Cosmic Background Explorer satellite resulted in data that supported the Big Bang theory and eventually led to his winning the 2006 Nobel Prize. He also discussed his latest project, the next great telescope called the James Webb Space Telescope, which promises to look farther back in time than the Hubble Space Telescope and could potentially discover life on other planets. After his much applauded lecture, Dr. Mather was swamped by requests for his autograph from a long queue of Filipino admirers, the likes of which one only sees with rock stars.

As with every Annual PAASE Meeting, the event concluded with the Business Meeting, which included a panel discussion of DOST's Balik Scientist Program with DOST Assistant Secretary Ma. Lourdes P. Orijola, and Balik Scientists, Dr. Alfonso Albano and Dr. Jose B. Cruz, Jr. Next year's Annual PAASE Meeting will be hosted by Ateneo de Manila University in July.