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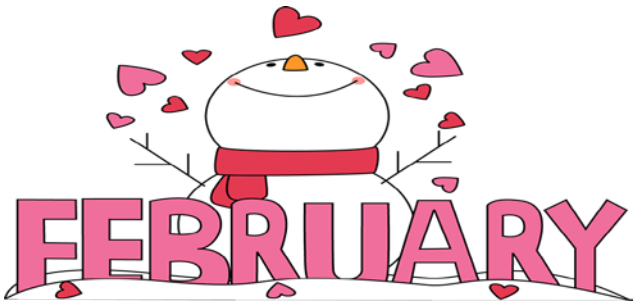

EMERITUS NO. 189 February, 2016

An occasional newsletter for the Emeritus Faculty Association

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Emeritus Faculty Association news February 2016

Next Meeting: Friday, February 5th, presentation to begin at 11:30am in the **Chemistry building, room 412.** Our speaker will be Chang Kee Jung, SUNY Distinguished Professor of Physics, Stony Brook University, and his presentation will be titled "Neutrinos, Nobel Prizes, Breakthroughs and Future."

Bio: Prof. Jung came to Stony Brook in 1990 from Stanford. He participated in various particle physics experiments based on high energy particle accelerators at Stanford Linear Accelerator Center (SLAC) and Fermi National Accelerator Laboratory (FNAL). In 1991, recognizing the importance of the neutrino physics in the coming decades, he started a research group called Nucleon decay and Neutrino (NN) group at Stony Brook to study neutrino properties and search for proton decays. Since then, he and the NN group have been participating in the Super-Kamiokande experiment that made a historic discovery of the neutrino oscillation phenomenon; the K2K, the first accelerator-based long baseline neutrino experiment; and the T2K long baseline neutrino experiment that discovered appearance of electron neutrinos from a muon neutrino beam. He also led an effort to build a deep underground science and engineering laboratory as well as a next generation nucleon decay and neutrino experiment in Colorado. He is now shifting his research effort to the Deep Underground Neutrino Experiment (DUNE) in the US. DUNE is expected to discover charge-parity symmetry violation in the lepton sector, which will provide an important clue for us to understand the matter-antimatter asymmetry in the universe.

Prof. Jung introduced and developed two new courses at Stony Brook: "Light, Color and Vision" and "Physics of Sports" for non-science major students. In particular, his "Physics of Sports" is the first such course in the U.S. and most likely in the world.
He has been interviewed numerous times by various media for his expertise in particle physics as well as physics of sports.

Abstract: Neutrinos are perhaps the most enigmatic particles among the matter-field elementary particles. Because of its fundamental "lack of interactions" it took many decades for its properties to be studied in detail since its existence was conceived by Pauli in 1930's. Also because of these intrinsic difficulties historically the experimental findings on neutrinos have been often surprising, often disagreeing with theoretical expectations and sometimes even controversial. I would say that in the neutrino field overall the experiments have led the theories, not the other way around as is the case in the collider physics field. Consequently, several Nobel prizes have been awarded to the neutrino experiments. In particular, most recently, the Nobel Prize in Physics 2015 was awarded to Takaaki Kajita and Art McDonald for the discovery of neutrino oscillations. Also just a few months ago, the Breakthrough Prize for Fundamental Physics 2016 has been awarded to the neutrino oscillation experiments.

In this talk, I will discuss some breakthrough advances in neutrino physics through historical perspectives, especially in connection with the Nobel prizes. I will discuss what makes an experiment a Nobel prize worthy, who gets the prize and why some prizes are given so late. I will also share some personal anecdotes that I have gained during my a quarter century of research in the neutrino field.

Our study on neutrinos has not been completed yet. For example, matter-antimatter asymmetry is one of the most outstanding mysteries of the universe that provides a necessary condition to our own existence. It is generally agreed that experimental observation of "Charge-Parity" Violation (CPV) in the lepton sector could provide us with a critical clue to this profound mystery.

Recent T2K data show an intriguing initial result on the CP violating phase parameter which is further corroborated by the Super-Kamiokande atmospheric neutrino results as well as the most recent results from NOvA. Ultimately, however, in order to establish unequivocal results on leptonic CPV, we need a next generation experiment with a more powerful beam, and a larger and/or higher resolution detector. The Deep Underground Neutrino Experiment (DUNE) in US is such an experiment.

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In Memoriam: Dick Solo

Published in Newsday on Dec. 1, 2015- See more at: http://www.legacy.com/obituaries/newsday/obituary.aspx?pid=176716021#sthash.391uBPCE.dpuf

SOLO - Richard "Doc" of Port Jefferson, New York, on November 27th, 2015. Beloved husband of Naomi. Loving father of David, Julie, Michael and his wife Susan, brother of Marge Seltzer. Friends remember Dick walking around the great outdoors, the Stony Brook University Campus and his beloved Port Jefferson Village, always with, a camera ready to photograph, in his special way, the world around him. He loved his family, students, nature, the Red Sox, and a good bowl of chili. Appropriately, his age 79 is Gold in the Periodic Table of the Elements, which matches his Golden personality. Friends may call at the Bryant Funeral Home 411 Old Town Rd., E. Setauket, LI. Visiting hours Wednesday, December 2nd from 4-8 PM. In lieu of flowers memorial donations to Good Shepherd Hospice and Staller Center for the Arts via the Stony Brook Foundation at the University. www. bryantfh.com

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Provost's Lecture Series

February 12: David Jablonski, Mass Extinctions and Evolution: What We’ve Learned Since Darwin.

David Jablonski is the William R. Kenan, Jr. Professor in the Department of the Geophysical Sciences and the Committee on Evolutionary Biology (a multi-institutional PhD program) at the University of Chicago. He combines data on living and fossil marine organisms to ask large-scale evolutionary questions about origins, extinctions, and geographic distributions. He grew up in New York City a few blocks from the American Museum of Natural History; he knew he wanted to be a paleontologist by the age of five. He was elected to the American Academy of Arts and Sciences in 2000 and the National Academy of Sciences in 2010. He has published more than 140 scientific papers and book chapters on topics ranging from mass extinctions to the origin and maintenance of the diversity gradient from poles to tropics and the role of multilevel processes in evolution.

Co-sponsors: Department of Ecology and Evolution, Department of Anatomical Sciences, Department of Geosciences

Abstract: The fossil record is punctuated by extinction events at all scales, from the loss of one or two fish species with the drying of a lake, to the wholesale disappearance of dinosaurs (birds aside) 65 million years ago. The handful of events that are global in scale and bring down a wide spectrum of species are termed mass extinctions, which account for less than 10% of all the extinction over life's long history, but have been pivotal in shaping the world's biota. Because most research has centered on the causes of mass extinctions, we are just beginning to understand their evolutionary roles. Growing evidence points to a change in the rules of survival during mass extinctions, so that evolution is re-channeled during these rare but intense episodes. The evolutionary bursts that follow the extinctions may be just as important as the extinctions themselves, as new or previously obscure lineages take advantage of the opportunities opened up by the demise of dominant groups. However, a closer look at recovery intervals shows that survival alone does not guarantee evolutionary success: not all survivors are winners. The implications of this new understanding of extinction for present-day biodiversity are complex but wide-ranging.

Friday, February 12, 7:30 pm, Earth and Space Sciences 001

Please visit the Provost's Lecture Series website at http://www.stonybrook.edu/sb/provlec.shtml for further updates.

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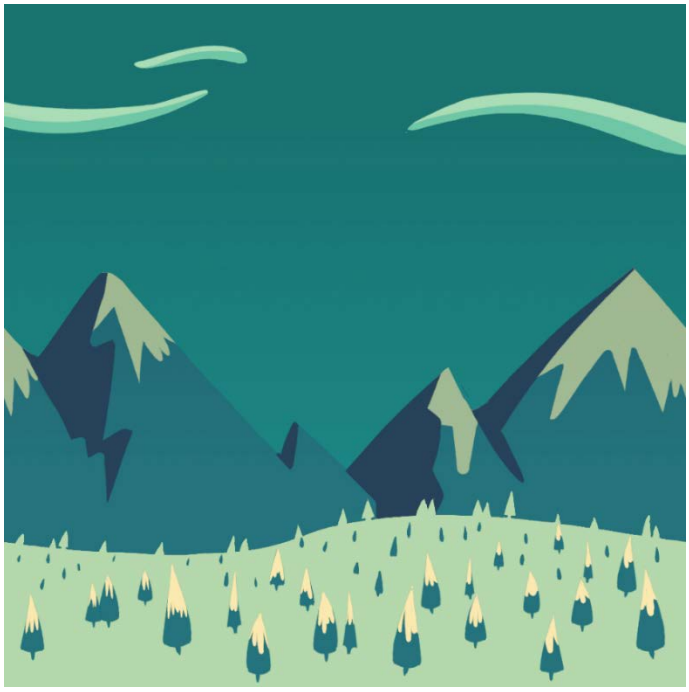
If you would like receive your copy of the newsletter via email instead of snail mail please send your name, address, and current email address to ***Alison Gibbons*** at: ***alison.gibbons@stonybrook.edu***

Visit our website: To visit our website, first go to the University website at **www.stonybrook.edu,** click on "For Faculty and Staff", and then on "Emeritus Faculty Association". It always contains the latest emeritus news (click on "Next Meeting"), a list of members' email addresses, a list of officers, newsletter archives and many other useful links.



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