



EMERITUS NO. 195 November 2016

An occasional newsletter for the Emeritus Faculty Association

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Emeritus Faculty Association News November 2016

Next Meeting: Friday, November 11th at 11:30 a.m. 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.

Bill Bruehl (Emeritus Theatre Dep't 1994 and aka William Justice Bruehl) announces his new book *What the Girl at the Picnic Said*. It is available at Amazon in both print and eBook. The book is a collection of coming-of-age stories about a boy growing up in the 20th Century from age 5 to 35 dealing with all those adversaries and angels most American boys encounter. Early reviewers have said that "he captures with a sun-burning honesty the confused and confusing world of a white boy buffeted by the racially-tinged fears of the adult world." And Bruehl "can knock out a gem of a sentence or a sparkling fresh metaphor that lifts his stories to artistic heights". And "he recreates the swagger as the well as the shame" of growing up."

November 3: Stanley Bergman and Eddie Bergman (moderated by Joseph Campolo)

Models of Corporate Social Responsibility and Social Entrepreneurship

Stanley Bergman is Chairman of the Board and CEO of Henry Schein, Inc., a Fortune 500® company headquartered in Melville, NY, and the world's largest provider of health care products and services to office-based dental, animal health and medical practitioners. Henry Schein is ranked #1 in its industry on Fortune's 2016 World's Most Admired Companies List. Social responsibility is a hallmark of the company's charter. "Team Schein" works actively to increase access to health care among underserved populations and to foster grassroots health care and sustainable entrepreneurial economic development initiatives in the United States, Africa and other developing regions of the world.

Eddie Bergman is President of Innovative Development Services (IDS) a full service consulting firm focusing on international and domestic tourism marketing and development as well as real estate management services in New York. Eddie is also Co-CEO of E&E Hospitality Group, which owns and manages restaurants in New York City. Eddie co-founded (when he was only 19 years old) and serves as President of the Board of MCW (Miracle Corners of the World), an NGO devoted to empowering youth to make positive change in their communities, with a special focus on Africa. Eddie was recently appointed a Goodwill Ambassador for The New Partnership for Africa's Development (NEPAD), the economic development program of the African Union, and he has received several humanitarian awards for his work, including the 2009 Ellis Island Medal of Honor.

Co-sponsors: College of Business, Office for the Integration of Research, Education and Professional Development, School of Dental Medicine, School of Social Welfare.

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Union, Cerini & Associates, LLP, and Klein Wealth Management.

Abstract: The Entrepreneurs Edge will feature a lively conversation between Stanley Bergman, CEO of Henry Schein, and Eddie Bergman, President of MCW Board of Directors and Co-CEO of E7E Hospitality Group, about global business, corporate social responsibility, and social entrepreneurship. The conversation will be moderated by Joseph Campolo, Chairman of Protegrity Advisors. This event will be the second in the Entrepreneurs Edge series, which showcases successful innovators from Long Island describing their sometimes roundabout and always individual career journeys. Connect with local business leaders at a reception immediately prior to the presentation.

Thursday, November 3, 7 pm, Student Activities Center (SAC) Auditorium
Reception, 6:30 pm, SAC, Ballroom B

November 10: Jack Dongarra

An Overview of High Performance Computing and Challenges for the Future
Jack Dongarra is Distinguished Professor in the Department of Electrical Engineering and Computer Science at the University of Tennessee. He also holds the title of Distinguished Research Staff in the Computer Science and Mathematics Division at Oak Ridge National Laboratory. Dongarra specializes in numerical algorithms in linear algebra, parallel computing, programming methodology, and tools for parallel computers. He has contributed to the design and implementation of open source numerical software packages such as LINPACK, BLAS, LAPACK, and MPI. His LINPACK Benchmark is used to rate the world's fastest supercomputers culminating in the yearly Top500 list.

Co-sponsor: Institute for Advanced Computational Science Student Association,
Graduate Student Organization

Abstract: In this talk, Professor Dongarra will examine how high performance computing has changed over the last ten years and look toward the future in terms of trends. These changes have had and will continue to have a major impact on our software. A new generation of software libraries and algorithms are needed for the effective and reliable use of (wide area) dynamic, distributed and parallel environments. Some of the software and algorithm challenges have already been encountered, such as management of communication and memory hierarchies through a combination of compile-time and run-time techniques, but the increased scale of computation, depth of memory hierarchies, range of latencies, and increased run-time environment variability will make these problems much harder. His talk will focus on the redesign of software to fit multicore architectures.

Thursday, November 10, 4 pm, Wang Center, Lecture Hall 2

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