REPORT TO THE UNIVERSITY SENATE

TO: University Senate

FROM: Dennis N. Assanis, Provost and Senior Vice President for Academic Affairs

DATE: March 7, 2016

Stony Brook University’s Annual Faculty Achievement Dinner

On April 26, 2016, Stony Brook University is hosting its annual Faculty Achievement Dinner at the Old Field Club. This event, established in 1992, recognizes faculty who received prestigious national and international fellowships, honors and awards during the period from January 1, 2015 through December 31, 2015. The Stony Brook faculty is a remarkable group that, year upon year, brings home remarkable honors. This event is a celebration of the renowned researchers and educators who call Stony Brook their home. These awardees are an embodiment of our great university and of our community of scholars. This year’s honorees will join the already distinguished group of faculty such as Nobel Prize winners, Fields medalists, many winners of United States Presidential medals and awards, MacArthur Foundation “genius” awards, and Members of the National Academies and the Royal Society.

2nd Annual Women's Leadership Symposium - Inspiration & Empowerment: A Conversation For and About Women in the Workplace

On Thursday, March 17, 2016 from 9:00 a.m. to 4:00 p.m. in the Student Activities Center Ballrooms A & B, Stony Brook University will hold its second annual Women’s Leadership Symposium entitled “Inspiration and Empowerment: A Conversation For and About Women in the Workplace.” The event’s keynote speakers will be Jessica Bacal, Director of the Wurtele Center for Work & Life at Smith College and author of the book, Mistakes I Made at Work: 25 Influential Women Reflect on What They Got Out of Getting it Wrong; and Tonjanita Johnson, Vice President of Communications and Marketing at the University of Tennessee System. Additionally, our own campus senior leaders, Lynn Johnson, Judith Greiman, Susan Blum and Mary Truhlar will discuss what they’ve learned in their leadership journey. This event is open to all Stony Brook employees, community members and individuals from surrounding higher education institutions who are seeking inspiration and empowerment in their professional and personal lives, and includes continental breakfast, luncheon, and door prizes. There will also be breakout sessions, networking opportunities, and a book signing. Registration fees are $25 for Stony Brook employees and $50 for community members and alumni. For additional information, or to register, visit http://you.stonybrook.edu/forward/ or call (631) 632-2780.

March 2016 Provost’s Lecture

On Thursday, March 10, 2016 at 9:00 a.m. in the Charles B. Wang Center Theater, Stony Brook University will be hosting its 21st Annual Leadership Symposium: Challenges in Higher Education. Shaun R. Harper will give a talk entitled “Best Practices in Creating an Inclusive
Campus Environment.” Shaun R. Harper, Founder and Executive Director of the Center for the Study of Race and Equity in Education at the University of Pennsylvania, is the author of the forthcoming book *Race Matters in College* and President-Elect of the Association for the Study of Higher Education. Professor Harper is a tenured faculty member in the Graduate School of Education, Africana Studies, and Gender Studies at the University of Pennsylvania. He maintains an active research agenda that examines race and gender in educational and social contexts, Black male college access and achievement, the effects of education policies and campus environments on student outcomes, and college student engagement. Joining Dr. Harper for the 21st Annual Leadership Symposium will be Cheryl D. Hamilton, Assistant Provost and Director of EOP/AIM, and Dr. Timothy Ecklund, Assistant Vice President for Student Affairs and Dean of Students. Ms. Hamilton and Dr. Ecklund will each respond to Dr. Harper's presentation, after which the presenters will address questions from the symposium audience. This lecture is co-sponsored by the Office of the Vice President for Student Affairs and the School of Social Welfare.

**20th Annual Swartz Foundation Mind/Brain Lecture with Alan Alda, Eric Kandel and Jim Simons**

Please save the date of April 4, 2016 at 4:00 p.m. on the Staller Center Main Stage for a very special event hosted by the Department of Neurobiology and Behavior in honor of the 20th anniversary of the Swartz Foundation Mind/Brain Lecture Series. Join us as actor/director and science advocate Alan Alda leads a discussion with Noble Laureate Eric Kandel and renowned mathematician Jim Simons on the dynamic relationship between mathematics and neuroscience and why it may be the key to solving the mind’s most puzzling mysteries. For more information on the speakers, please visit stonybrook.edu/mindbrain.

**Outcomes of the LOI Review Process for the 2015-2016 Stony Brook Online Learning Development (S-BOLD) Initiative**

The President and Provost of Stony Brook University, in support of the continuing evolution of educational excellence for our students and the world, have established the Stony Brook Online Learning Development Initiative (S-BOLD), funded initially for four years at a level of $250,000 per year. The goals of the initiative are to: leverage online channels and technology to enhance and support SBU’s educational mission; improve the quality, flexibility and accessibility of SBU education to better serve the needs of residential, commuter and nontraditional students; become a leader in pedagogical innovation to enhance teaching and learning outcomes; and enhance SBU’s brand and global reach.

In response to the second call of the S-BOLD Initiative, we received 13 Letters of Intent (LOIs) from various disciplines, including the Humanities, Sciences, Engineering, and Multidisciplinary programs. Among the submitted LOIs, three were seeking funding in the category involving hands-on/experiential learning, and ten were from the large enrollment category (at least 200 or more students). Based on the recommendations from the Group for Online and Alternative Learning and the Online Education Executive Committee, as well as input from deans and chairs, the following LOIs (listed in alphabetical order according to lead PI) are advancing to the full proposal round:
BNL Executive MBA Program

Stony Brook University now offers an on-site MBA program at Brookhaven National Laboratory, exclusively for Lab employees. The program is a 36-48 credit Executive MBA Program with classes given weeknights on-site at the Lab. In the program, students will interact with other BNL students from a variety of backgrounds. The program combines classroom work and real life experience, including industry projects, innovation boot camps, and other initiatives. Applications are being accepted until March 15, 2016 for summer 2016 program admission. Applications to start in fall 2016 are due by June 15, 2016. For additional information, contact Amy Milligan at 631) 632-5708 or amy.milligan@stonybrook.edu.

SBU-BNL Joint Appointments

Stony Brook University and Brookhaven National Laboratory have more than 120 joint appointments supporting the strategic missions of both institutions. Many of these are guest appointments (at BNL) or non-salaried faculty appointments (at Stony Brook) that enable researchers to develop collaborations, access facilities, mentor students and, in some cases, participate in teaching. Other joint appointments involve formal arrangements, with effort assigned at Stony Brook and Brookhaven and shared salary funding. Joint appointees strengthen ties between Stony Brook and Brookhaven, facilitate student engagement at Brookhaven, and contribute to shared research goals. Some of our notable joint appointees are:

Barbara Chapman - Barbara Chapman’s research focuses on exploring technologies and strategies for increasing the productivity of application developers, particularly for the creation of application programs that are deployed on large-scale computers. She performs research on parallel programming interfaces and the related implementation technology and is involved in several efforts to develop community standards for parallel programming, including OpenMP, OpenSHMEM and OpenACC. She is also interested in productivity-enhancing tools and in supporting the use of parallel computing systems in embedded systems design. Barbara serves on national and international science advisory committees and has authored over 200 scholarly works in this field.

Lars Ehm – Lars Ehm is interested in the connection between atomic structure and macroscopic physical properties in Earth materials at extreme pressure and temperature conditions of the deep Earth. His goal is to understand the structure, chemistry and properties as well as the processes in the Earth’s interior. As we can only directly sample Earth materials from relatively shallow
depth, we depend heavily on simulating the conditions of the Earth’s interior in the laboratory. Synchrotron sources, especially the National Synchrotron Light Source, have been an excellent tool for measurements, since the very bright and intense synchrotron light allows us to penetrate the high pressure vessels and investigate the Earth material directly at the pressure and temperature conditions of interest. The development of new synchrotron instrumentation and sample environments that enable the investigation of materials at extreme conditions is his second focus and goes hand in hand with our research quest of understanding the deep Earth.

Matthew Eisaman - Matthew Eisaman's research explores technologies for improving the efficiency of solar cells, including photonic nanostructures for light trapping and improved device efficiency, and the connection between structural variations and performance at the nanoscale. Examples of recent and ongoing projects include: (1) novel methods for the high-resolution spatial mapping of charge collection probability within solar cells, (2) exploration of nanoscale structure-function relationships in thin-film solar cells, and (3) the design and understanding of sub-wavelength nanostructures for improved antireflection coatings.

Robert Harrison - Robert Harrison is a distinguished expert in high-performance computing and the Director of the Computational Science Center at Brookhaven National Laboratory. Dr. Harrison comes to Stony Brook from the University of Tennessee and Oak Ridge National Laboratory, where he was Director of the Joint Institute of Computational Science, Professor of Chemistry and Corporate Fellow. He has a prolific career in high-performance computing with over one hundred publications on the subject, as well as extensive service on national advisory committees.

Jiangyong Jia – Jiangyong Jia is interested in studying the properties of the dense nuclear matter created in relativistic heavy ion collisions. Under extremely high temperature and density, such matter exist in the form of quasi-free quarks and gluons (Quark-Gluon Plasma or QGP), whose interactions are scribed by the Quantum Chromo Dynamics (QCD) theory. We seek to recreate and study QGP in the laboratory and to understand its underlying QCD theory. Our research is carried out at the Relativistic Heavy Ion Collider at BNL and at the Large Hadron Collider at CERN. Our group is involved with the PHENIX and ATLAS experiments, respectively, at each of these accelerator facilities.

Peter Khalifah - materials chemistry, solid state chemistry, periodic solids provide the backbone of the high-tech industry due to their amplification of the interactions between individual atomic and molecular building blocks assembled within their crystalline lattices. This group focuses on designing functionality into crystalline solids using elemental substitution and structural control to fine-tune the energy levels of bulk materials. Our expertise in materials synthesis, structural characterization, and physical properties measurements allows us to tackle all aspects of this “internal design” process.

Dmitri Kharzeev - Dmitri Kharzeev is interested in all aspects of the modern theory of strong interactions, Quantum Chromo Dynamics (QCD), and its applications to the description of experimentally accessible phenomena. He is closely involved in theoretical research related to the programs at the Relativistic Heavy Ion Collider at BNL and the Large Hadron Collider at CERN. In particular, he studies the ways in which the underlying quark-gluon structure of hadrons and nuclei determines the dynamics of their interactions and the salient features of the visible Universe.
Huilin Li – Huilin Li’s research is aimed at understanding the function of biological macromolecules via structural analyses, primarily by cryo-electron microscopy. Cryo-EM is capable of revealing low to medium resolution structures of large protein complexes that are proven difficult for X-ray crystallography or NMR methods.

Vladimir Litvinenko – Litvinenko is currently head of the Accelerator Physics Group for Brookhaven's newest facility for nuclear physics research, the Relativistic Heavy Ion Collider. Litvinenko has made critical contributions to R&D on the high-energy electron cooling of RHIC and to discoveries in designing high-brightness electron beam injection to an energy recovery linac machine. He also played a key role in the National Synchrotron Light Source II team developing the design philosophy for this unique light source. With colleagues, he also established the Center for Accelerator Science and Education at Stony Brook University and BNL, where he currently serves as Co-Director.

Emilio Mendez - Emilio Mendez is interested in novel properties of solids with potential for applications in electronics or photonics. In particular, he studies the transport, magneto-transport, and optical properties of semiconductor hetero-structures. He has contributed to the elucidation of phenomena such as resonant tunneling, the quantum Hall effects, and the Stark effects in quantum wells and super lattices. He is also interested in explaining the analogies between optical phenomena in semiconductor micro-cavities and atom-cavity physics and the use of electronic noise to shed light on the mechanisms that govern electrical conduction in solids.

John Parise - John Parise is interested in the relationships between properties and the underlying atomic arrangements in condensed matter, especially at the extremes of temperature and pressure. Under extreme conditions the properties of materials can be quite different, and potentially useful, compared to those properties at room conditions. Coupling to theory, preparation of novel states of matter, recovering to room conditions, studying properties and characterizing the atomic arrangements are vital parts of the research program. John co-directs the Joint Photon Sciences Institute (JPSI), which was formed by BNL-SBU.

Roman Samulyak - Roman Samulyak’s research involves mathematical modeling and numerical algorithms and simulations of complex physics processes in particle accelerators and energy research applications. He has performed numerical studies of liquids mercury targets for future particle accelerators, such as the Neutrino Factory/Muon Collider and the Spallation Neutron Source, collective interactions of particles in accelerators, and fueling of thermonuclear fusion devices by the injection of cryogenic pellets.

Trevor Sears – Trevor Sear’s research is focused on the study of high resolution spectroscopy of chemical intermediates and the development of precise and sensitive experimental methods. Spectroscopic methods are also used to investigate the energetics, dynamics and kinetics of collisional processes in the gas phase by following the evolution of a single quantum state of a molecule in time. The goal of this work is a fundamental understanding of chemical processes related to combustion. We are interested in the microscopic factors affecting the structure, dynamics and reactivity of short-lived intermediates such as free radicals in gas-phase reactions.

Esther Takeuchi – Esther Takeuchi’s research focuses on the advancement of battery systems with high energy and power densities, which remains a lynch pin for new generations of energy storage. The full utilization of renewable energy sources, such as wind, photovoltaic,
hydroelectric, and geothermal power depends on the ability to store energy, as in many cases, the renewable energy is generated on an intermittent basis. Additionally, portable electronics, hybrid vehicles, electric vehicles, biomedical devices, and aerospace applications demand advanced batteries that can perform safely over many years. Finally, the way in which communities handle power demands through power grids may be affected significantly by new developments in energy storage.

**Michael White** – Michael White’s research is aimed at providing a molecular level understanding of the energetics, dynamics and morphology-dependence of elementary surface reactions that play key roles in energy-related catalysis. Specifically, we are interested in systems involving simple feedstock chemicals (e.g., H2, CO, CO2, O2, CH4), the selective oxidation of C1 and C2 molecules (e.g., CH3OH, C2H4) and reaction systems that have environmental impact (e.g., De-NOx, De-SOx). We approach these problems from a chemical physics perspective in which experiments are designed to probe the adsorbate-metal potential surface and the dynamical paths that lead to reaction.

**Stanislaus Wong** - Working on the nanometer scale, one billionth of a meter, requires the ability to synthesize, manipulate, and organize matter in a controllable manner as well as to predict and understand the properties of the resulting structure. Fundamentally, the focus of the nanoscience research in this group is to study discrete, molecular-scale intermolecular interactions. These are critical to understanding problems such as (a) friction, adhesion, and lubrication, important for physics applications; (b) binding energies on surfaces, essential for the design of effective chemical and biological catalysts; and (c) phenomena such as chemical and biological self-assembly.