

Living World Open Night, Friday, April 1, 2016

CANCELED

Astronomy Open Night, Friday, April 8, 2016

ESS 001; 7:30 P.M.

For more information: <http://www.astro.sunysb.edu/openight/opennite.html>

Neelima Sehgal

“Detecting Gravitational Waves from the Infant Universe”

In this talk Prof. Sehgal will describe research efforts to understand our infant Universe. These efforts consist of measuring the fluctuations in the cosmic microwave background which surrounds us to detect the faint traces of gravitational waves from the first fractions of a second after the Big Bang. She will briefly review the recent detection of gravitational waves from colliding black holes by the LIGO instrument, and put early Universe gravitational waves in context. She will also discuss how scientists plan to detect these primordial gravitational waves and why detecting them would have profound implications for understanding the birth of our Universe and fundamental physics.

Prof. Neelima Sehgal has been an Assistant Professor in the Physics and Astronomy Department at Stony Brook University since 2012. Her research interests include understanding dark energy, dark matter, neutrino properties, and the early Universe.

World of Physics Open Night, Friday, April 15, 2016

ESS 001; 7:30 P.M.

For more information: <http://www.physics.sunysb.edu/Physics/WorldsOfPhysics/2015/>

Mengkun Liu

“Seeing is believing: An Ultra-Small and Ultra-Fast world”

Despite the fact that the size of an iPhone becomes “bigger than bigger” and the waiting time of a nobel prize becomes longer and longer (Nature 508, 186 (2014)), exciting new physics and technology innovations will nevertheless emerge on smaller and smaller length scales with faster and faster temporal responses. In this talk we will explore the world of novel materials with extremely powerful optical microscopes and other state of the art optical tools with superior spatial and temporal resolution.

Dr. Mengkun Liu is an Assistant Professor in the condensed matter area. He is an expert in ultrafast spectroscopy and infrared spectroscopy, including near-field nano-imaging and spectroscopy. Mengkun received his Ph.D degree in the Department of Physics at Boston University in 2012. Before coming to Stony Brook he was postdoc at the Department of Physics at UC San Diego in

Dmitri Basov's laboratory. His research interests include complex materials with strong electronic correlations and electron phonon coupling (superconductors, multiferroics, magnetoresistors, heavy-fermion actinide compounds) and metamaterials. He studies plasmons in graphene, polaritons in Boron Nitride, and the phase separations in vanadium dioxide thin films. He creates artificial composites by E-beam lithography, photolithography or stencil imprint techniques. He uses these metamaterials as mediators between light and matter to perturb and study the novel optical/THz responses of complex systems.

Living World Open Night, Friday, April 22, 2016
Special Earthstock Plenary Lecture

Wang Center Auditorium; 7:30 P.M.

For more information: <http://life.bio.sunysb.edu/marinebio/livingworld/>
& <http://www.stonybrook.edu/commcms/earthstock/>

John Warner

“Green Chemistry: The Missing Elements”

Imagine a world where all segments of society demanded environmentally benign products! Imagine if all consumers, all retailers and all manufacturers insisted on buying and selling only non-toxic materials! The unfortunate reality is that, even if this situation were to occur, our knowledge of materials science and chemistry would allow us to provide only a small fraction of the products and materials that our economy is based upon. The way we learn and teach chemistry and materials science is for the most part void of any information regarding mechanisms of toxicity and environmental harm. Green Chemistry is a philosophy that seeks to reduce or eliminate the use of hazardous materials at the design stage of a materials process. It has been demonstrated that materials and products CAN be designed with negligible impact on human health and the environment while still being economically competitive and successful in the marketplace. This presentation will describe the history and background of Green Chemistry and discuss the opportunities for the next generation of materials designers to create a safer and more sustainable future.

Dr. John Warner is the recipient of the 2014 Perkin Medal, widely acknowledged as the highest honor in American Industrial Chemistry. He received his BS in Chemistry from UMASS Boston, and his PhD in Chemistry from Princeton University. After working at the Polaroid Corporation for nearly a decade, he then served as tenured full professor at UMASS Boston and Lowell (Chemistry and Plastics Engineering). In 2007 he founded the Warner Babcock Institute for Green Chemistry, LLC (A research organization developing green chemistry technologies) where he serves as President and Chief Technology Officer, and Beyond Benign (a non-profit dedicated to sustainability and green chemistry education). He is one of the founders of the field of Green Chemistry, co-authoring the defining text [Green Chemistry: Theory and Practice](#) with [Paul Anastas](#). He has published over 250 patents, papers and books. His recent work in the fields of pharmaceuticals, personal care products, solar energy and construction and paving materials are

examples of how green chemistry principles can be immediately incorporated into commercially relevant applications. Warner received The 2004 Presidential Award for Excellence in Science Mentoring (considered one of the highest awards for US science education), the American Institute of Chemistry's Northeast Division's Distinguished Chemist of the Year for 2002 and the Council of Science Society President's 2008 Leadership award. Warner was named by ICIS as one of the most influential people impacting the global chemical industries. In 2011 he was elected a Fellow of the American Chemical Society and named one of "25 Visionaries Changing the World" by Utne Reader.

Geology Open Night, Friday, April 29, 2016

ESS 001; 7:30 P.M.

For more information: <http://www.geo.sunysb.edu/openight/index.html>

Lianxing Wen

"North Korea's Nuclear Tests: what we learned from seismology"

In 1996, the United Nations General Assembly adopted the Comprehensive Nuclear-Test-Ban Treaty, which bans nuclear explosions by everyone, everywhere: on the Earth's surface, in the atmosphere, underwater and underground. So far, 183 countries have signed the Treaty, of which 164 have also ratified it. Seismology plays one of the most prominent roles in monitoring nuclear tests around the world. In recent years, we have been developing seismological methods to detect low-yield nuclear tests and to determine the location and yield of a nuclear test in high precision. In this presentation, I will present high-precision locations and yields of North Korea's 2006, 2009, 2013 and 2016 nuclear tests, and seismic evidence for a low-yield nuclear test conducted by North Korea in May 2010.

Professor Wen is a theoretical and observational seismologist and geodynamicist. His research is directed toward understanding the structure, dynamics, composition and evolution of the Earth and other planets. He uses seismic waves to probe the internal structure of the Earth and its change with time, combines seismic and mineral physics data to constrain the composition of the mantle, and develops geodynamical models of how Earth's internal processes govern the Earth's continental drift, surface uplift, surface large igneous province, geochemistry, intra-plate deformation and volcanism.

Professor Wen is a recipient of the James B. Macelwane Medal from the American Geophysical Union (AGU) and a fellow of the Union. Macelwane Medal honors "significant contributions to the geophysical sciences by a young scientist of outstanding ability" and AGU fellowship is a designation conferred upon not more than 0.1% of all AGU members in any given year.

Directions to SUNY Stony Brook and ESS Building

- ⇒ From exit 62 of the Long Island Expressway (LIE, I-495) follow Nicolls Road (Route 97) north for nine miles. Pass the South and Main entrances to the University.
- ⇒ Enter the North entrance which will be on your left.
- ⇒ At the top of the small hill, turn right on Circle Road.
- ⇒ Proceed about 1 mile.
- ⇒ Turn left onto Campus Drive and then immediately turn left again onto John S. Toll Drive.
- ⇒ Proceed about 50 yards then turn right into the large paved parking lot.
- ⇒ The Earth and Space Sciences building is the large concrete building at the northeast end of the parking lot.

Map of campus is on the web at: <http://www.stonybrook.edu/sb/map/>

TEACHER IN SERVICE CREDITS

If your school requires you to have a sequence of educational opportunities in order to receive in-service credit, please advise them that during the Spring 2016 semester we will provide attendance certification for each of the lectures attended.

Please contact the respective department for more information.