

Geology Open Night, Friday, October 7, 2016

ESS 001; 7:30 P.M.

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

William Holt

"How The West Collapsed: The Rise and Fall of the North American Cordillera"

Western North America today consists of high topography with many roughly north-south trending mountain belts, including the Rockies, the Basin and Range province, and the Sierra Nevada range. The complex geology and topography owes much of its existence to a long history of subduction and mountain building along the western margin of North America, followed by the development of the San Andreas Fault system in California. At the conclusion of the period of wide-spread convergence about 35 million years ago a major mountain range existed to the west of the Rockies in what is now the Basin and Range province. Little is known about the precise height or distribution of this mountain chain. This topography experienced a dramatic collapse as subduction ceased along the western margin of North America and the current San Andreas fault system developed. This collapse of topography continues today. In this talk I will provide a tour through geologic time of the west and show new research results that demonstrate that this ancient mountain range was once as high as the Andes Mountains of South America. What remains enigmatic is how or why the lithosphere weakened enough for the topography to collapse. Geophysical evidence points to a hot upper mantle beneath these regions. Furthermore, the introduction of water into the upper mantle and crust from the ancient Farallon slab that subducted beneath North America likely played a major role as a weakening mechanism that facilitated the collapse of topography.

William Holt is a Professor in the Department of Geosciences, Stony Brook University. His interests include seismology and active tectonics. Professor Holt uses observations from seismology, space-geodesy, and geology to constrain the forces operating in the lithosphere that are responsible for producing earthquakes, plate tectonics, and mountain building. Professor Holt is a Fellow of the American Geophysical Union, an NSF early CAREER awardee, and was given an Alumni Achievement award from the University of Arizona. Professor Holt was on the founding Board of Directors for the UNAVCO which is a non-profit university-governed consortium that facilitates research and education in geodesy.

Living World Open Night, Friday, October 14, 2016

ESS 001; 7:30 P.M.

For more information: <http://life.bio.sunysb.edu/marinebio/livingworld/>

Michael A. Bell

“Mixing Fun and Science: Evolution of Alaskan Threespine Stickleback Fish”

The Threespine Stickleback fish has fascinated and perplexed biologists since the dawn of biological science. Dozens of stickleback species were named before it was realized that similar traits had evolved repeatedly in far-flung populations of this single species. The most distinctive populations are young and occur in regions that were covered by Ice Age glaciers only a few thousand years ago. In the late 1960s, research in British Columbia produced key insights into stickleback evolution and inspired my research. Prof. Bell will review field research, the environmental setting, and rapid evolution of Threespine Stickleback populations in lakes around Cook Inlet, Alaska. Our annual sampling program since 1990 has shown that many adaptations that have evolved since the last Ice Age could actually have evolved just decades after stickleback colonized fresh water. He will show the beauty of Alaska and combine this with a demonstration of the speed and power of evolution by natural selection.

Mike Bell was born in Brooklyn, grew up in Los Angeles, and came to Stony Brook University in 1978. He has been said to view evolutionary biology through “stickleback-tinted glasses,” but it worked for him. His research combines paleontology, geographical variation, anatomy, development, genetics, and genomics. His “stickleback-tinted glasses” have yielded novel insights into evolutionary processes. This research and his co-edited book, *The Evolutionary Biology of the Threespine Stickleback*, facilitated development of this species into the “biological supermodel” it is today. He was also the first biologist to study the evolution of stickleback populations from the Cook Inlet, Alaska and has attracted a dozen labs to do stickleback research there. Twice he co-organized the International Conference on Stickleback Behavior and Evolution and co-edited the Conference proceedings. Bell is a Fellow of the American Association for the Advancement of Science and a Research Associate at the University of California Museum of Paleontology at the University of California, Berkeley.

World of Physics Open Night, Friday, October 21, 2016

ESS 001; 7:30 P.M.

For more information: <http://www.physics.sunysb.edu/Physics/WorldsOfPhysics/20162017/>

Sriram Ganeshan

“How whole is more than the sum of its parts in Physics”

Indistinguishable nature of particles is one of the hallmarks of quantum physics. However, millions of such indistinguishable entities come together to yield distinct features that constitute the world we see around us. To motivate this discussion, Prof. Ganeshan would urge the audience to come up with everyday things that they think are indistinguishable! He would briefly outline how physicists attempt to understand the underlying principles of similar particles coming together in a crowd and end up losing their identity as an individual.

Sriram Ganeshan is a Ph.d. graduate of Stony Brook University with a Postdoctoral Research position held at University of Maryland. He joined the Simons Center for Geometry and Physics as a Research Assistant Professor in 2015.

Astronomy Open Night, Friday, October 28, 2016

ESS 001; 7:30 P.M.

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

Alan Calder

“NASA's Juno mission to Jupiter”

NASA's Juno spacecraft was launched on August 5, 2011 and arrived at Jupiter on July 4, 2016. Its mission is to study the atmosphere of Jupiter to measure the composition, particularly the amount of water, and to observe Jupiter's magnetic and gravitational fields. The information from Juno will help us better understand the origin and evolution of Jupiter, which will also help us understand the formation of giant planets. In the talk, we will discuss the layout of the solar system and what we know about Jupiter, theories of planet formation, questions the Juno mission strives to answer and the latest results from Juno.

Alan Calder joined the Stony Brook Physics and Astronomy department in 2007 after research appointments at the University of Illinois and the University of Chicago. His research is in numerically modeling astrophysical phenomena, and he has studied a variety of problems including core collapse and thermonuclear supernovae, merging neutron stars, and classical novae.

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 Fall 2016 semester we will provide attendance certification for each of the lectures attended.

Please contact the respective department for more information.