Astronomy Open Night, Friday, December 1, 2017
ESS 001; 7:30PM
For more information: http://www.astro.sunysb.edu/openight/opennite.html

Jim Lattimer

“When Neutron Stars Collide: The Story of GW170817”

The recent LIGO/VIRGO observation of gravitational waves from the merger of two neutron stars, and follow-up observations in gamma ray, X-rays, ultraviolet, optical, infrared, millimeter and radio radiation was the most intensively studied astronomical event of all time. These observations revealed that two approximately 1.4 solar mass neutron stars merged after being born in supernova explosions and orbiting each other for around 11 billion years, and in the process, created a short gamma-ray burst and ejected about 20,000 Earth masses of heavy elements into space. The merger occurred in a galaxy far, far, away, about 130 million light years distant. It seems likely that the remnant collapsed into a black hole within a second. The optical and infrared radiation observed for over a week following the merger likely originates from the radioactive decay of nuclei formed from ejected neutron star matter, which apparently solves the century-old mystery of the origin of half of elements heavier than iron, the so-called r-process elements, which include gold and platinum. This event also confirmed the association between short gamma-ray bursts and mergers.

Jim Lattimer has been on the astronomy faculty at Stony Brook University for nearly 40 years, mostly studying supernovae, neutron stars, and the dense matter equation of state. He and his thesis advisor, David Schramm, first predicted 43 years ago that merger-ejected neutron star matter would synthesize r-process elements. But until recently, this idea was met with skepticism and it was widely believed that supernovae were responsible for the creation of these elements. This talk will not only discuss the observations of GW170817, but will also present a first-hand history of the debate concerning the origin of r-process elements.

World of Physics Open Night, Friday, December 8, 2017
ESS 001; 7:30PM
For more information: http://www.physics.sunysb.edu/Physics/WorldsOfPhysics/2017-18/

Vladimir N. Litvinenko

Particle accelerators are everywhere; in your car, your kitchen, your medicine—Just name it

Particle accelerators were invented to better understand the universe and to pursue fundamental research, but they found a way of improving our lives in unprecedented ways by creating products and procedures with unparalleled capabilities. It does not matter what we touch or use – both physically and virtually – it has a momentous imprint of particle accelerators. In this lecture we will look into the fascinating world of particle accelerators, their applications and the way they are transforming our lives.

Vladimir Litvinenko is an accelerator physicist. He is a Professor of Physics at Stony Brook University and Director of the Center for Accelerator Science and Education, (CASE, http://case.physics.stonybrook.edu/index.php/Main_Page). He also holds joint positions at Brookhaven National Laboratory, where he is pursuing his research at Collider-Accelerator Department and Relativistic Heavy Ion Collider.
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

NYS teachers who wish to receive CTLE credit for any of these lectures must register here: https://goo.gl/forms/pfdNLevMTO8VfbJQ2. You must register for each lecture you attend and sign-in at the lecture. The Graduate School will send a CTLE certificate about six weeks after each lecture.