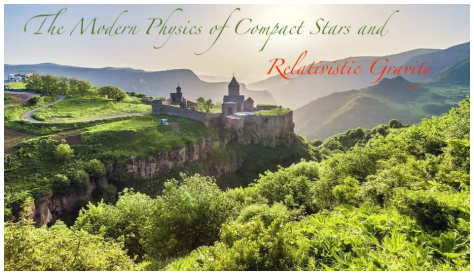

Contribution ID: **92** Type: **not specified**

Nuclear Physics and GW170817

Thursday 30 September 2021 16:40 (45 minutes)

The GW170817 event answered one of the important questions regarding a potential site of heavy element synthesis in the cosmos. The observations of the gravitational waves (VIRGO and LIGO) along with signatures from 70 electromagnetic transients indicated that heavy element synthesis was indeed going on up to the rare-earth region of the chart of nuclides. These series of connected observations answered an important question but unveiled a number of new ones. Questions about the extent of the synthesis, did it reach the actinides? The role of fission was once again explored. Does fission of the very neutron rich nuclei follow expected distributions? There is ample evidence that very different fission distributions result from the very neutron rich nuclei. What is the role of cluster decays and the potential population of the island of stability or the synthesis of super-heavy elements. Perhaps even more importantly, what are sources of the neutrons? Stellar evolution from the very first generation of stars to the explosive astrophysical scenarios that contribute to the solar abundances of the elements require abundances of neutrons. This talk will explore questions and answers.

The Nuclear Science Laboratory at the University of Notre Dame is funded by the National Science Foundation under contract Number PHY-2011890. AANL is funded via the State Science Committee of the Republic of Armenia.

Author: Prof. ANI, Aprahamian (AANL, Yerevan, Armenia and NSL, Notre Dame,)

Presenter: Prof. ANI, Aprahamian (AANL, Yerevan, Armenia and NSL, Notre Dame,)