



## Physics Division Seminar

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### **Nuclear Physics and Neutron-Rich Nucleosynthesis**

**Host: Filip Kondev**

**Monday, November 12, 2018 – 203, R150, 3:30 PM**

Last August marked the first observation of gravitational waves and electromagnetic signals from the merging of two neutron stars sending ripples through the astrophysics, atomic physics, nuclear physics and gravitational wave communities. I will briefly overview the GW170817 event including the resultant kilonova, or electromagnetic transient powered by the radioactive decay of freshly produced heavy nuclei. Since some amount of heavy nuclei were created, the rapid neutron capture process or r-process nucleosynthesis is likely to have ensued. I will discuss this possibility and then focus the talk on recent nuclear structure and reaction work performed at Los Alamos that is relevant for the inclusion in nucleosynthesis calculations. I will end with a discussion of current and future measurement campaigns at ANL that could transform our understanding of neutron-rich nuclei and their role in the formation of the heaviest elements.