

## Forging the Universe's gold

*Friday, 31 May 2019 11:45 (30 minutes)*

Gravitational-wave observatories are currently revolutionizing astrophysics and astronomy. Detections of neutron star mergers trigger follow-up campaigns of unprecedented scope by astronomers and particle (astro)physicists worldwide. In this talk, I will attempt to provide an overview of some exciting recent results at the interface of high-energy astrophysics, strong gravity, and nuclear physics. In particular, I will focus on what one can learn from neutron star mergers and other astrophysical phenomena related to compact objects in terms of cosmic nucleosynthesis. To celebrate the 150th anniversary of the periodic table, I will show how recent theoretical results in combination with observations of compact binary mergers overthrow our understanding of how the Universe creates the heavy elements. I will highlight implications for high-energy astrophysics, nuclear physics, and cosmology.

**Primary author:** Prof. SIEGEL, Daniel (Perimeter Institute for Theoretical Physics & University of Guelph)

**Presenter:** Prof. SIEGEL, Daniel (Perimeter Institute for Theoretical Physics & University of Guelph)

**Session Classification:** Talks