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## New Physics and the Black Hole Mass Gap

*Thursday, 8 July 2021 17:50 (20 minutes)*

The LIGO/Virgo collaboration is making astonishing discoveries at a fantastic pace, including a heavy binary black hole merger with component masses in the “black hole mass gap,” which cannot be explained by standard stellar structure theory. In this talk, I will discuss how new light particles that couple to the Standard Model can act as an additional source of energy loss in the cores of population-III stars, dramatically altering their evolution and potentially explaining mass-gap objects. I will also demonstrate how new population catalogs can help distinguish different scenarios for the origin of these objects.

**Primary author:** MCDERMOTT, Samuel (Fermilab)

**Presenter:** MCDERMOTT, Samuel (Fermilab)

**Session Classification:** Exploring the Black Hole Mass Gap

**Track Classification:** Black Holes: Theory and Observations/Experiments: Exploring the Black Hole Mass Gap