

Abstract Submitted
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Developing a Laboratory-scale Kilonova Apparatus¹ MARTIN DRIGGERS, MATT MEYERS, PATRICK JOHNSON, CHAD SOSOLIK, Clemson University — Kilonova are currently the predicted source of all elements heavier than iron. Following the recent measurement of light from a kilonova event, emissions spectra from these heavier elements is necessary to verify this theory. We have designed and built an apparatus capable of creating heavy metal ions that emit spectra relevant to kilonova events. This apparatus consists of a vacuum chamber containing a tunable RHEED electron gun and a metal target. The electron gun bombards the target producing ions. The target consists of a box with an entrance port for the electrons and a viewing port to observe the spectra. To test our apparatus, we measured the ion current produced from a copper target. We also captured long exposure images of the target and found that the beam does produce visible light. While we have so far been unable to verify the copper spectra produced, we are modifying our apparatus with a higher-current electron gun to produce higher-intensity spectra for this experiment.

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Martin Driggers
Clemson University

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