

Abstract Submitted
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Analyzing Abundances of R-process Elements in Metal Poor Stars Utilizing GTC Spectra VICTORIA MOORE, University of Florida — The r-process involves a heavy atomic nucleus seed undergoing rapid neutron capture to create a heavier element. This can only be achieved in environments of high free neutron density and high temperature. The site(s) of the r-process have been debated for a long time. Theoretical investigations have suggested neutron star mergers, collapsars and magneto-rotational supernovae as possible contenders. The electromagnetic counterpart of the first ever observed neutron star merger, GW170817, has confirmed the presence of r-process rich ejecta. However, no detailed r-process abundance measurements could be made. Evidence of the r-process can be seen in metal-poor stars such as those in the halo of the Milky Way. We present chemical abundance analysis of metal-poor stars observed using the 10m Gran Telescopio Canarias (GTC) in the Canary Islands, Spain. This is the first set of data to be analyzed for r-process from the high resolution optical echelle spectrograph HORuS on the GTC. I have used the spectroscopic analysis tool Spectroscopy Made Hard to determine the abundances of neutron capture elements from the high resolution spectra of a sample of r-process enhanced stars. The results of our analysis are used to better constrain the origins of the r-process and its sites.

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