PRODUCTION OF NICKEL-56 IN MERGER ACCRETION DISK OUTFLOWS

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Compact object mergers are likely a rich source of nuclei, whose radioactive decays may power electromagnetic counterparts ('kilonovae') to these rare events. Different types of nuclei decay at different rates, which changes the predicted signal. Thus these signals can only be understood if the full nucleosynthetic output of the merger event is considered. We investigate the element synthesis in neutrino-heated disk outflows, and find that it can produce different nuclei than the tidal tails which produce an r-process. In particular, when general relativistic effects on the neutrino spectra are considered, proton-rich outflows result and vigorous production of Nickel-56 is predicted. The radioactive decay of this Nickel-56 may significantly alter the expected kilonova signal.