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Heightened Carbon Abundances in Binary CEMP-no Stars ELYSE HARMAN, TERESE HANSEN, Texas AM University — Abundance analysis of the oldest and most metal-poor low mass stars in our Universe has revealed a large fraction of these to be enhanced in carbon (CEMP-no stars). The distribution of carbon abundances for CEMP-no stars has been found to be bimodal splitting into a high and low carbon group. The abundance patterns are generally believed to reflect the nucleosynthesis of the first supernovae exploding in the Universe; however, we show that stars belonging to the high-carbon group are more likely to be binaries. This reveals two potential paths of evolution for CEMP-no stars based on binary status, as binary stars may have accumulated higher carbon abundances by mass transfer within the binary system. We also are working to expand the sample of CEMP-no stars for which we have abundance and radial velocity data to further this study.

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