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New CEMP Stars Identified in the RAVE Survey

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We present an analysis of the elemental abundances for a sample of 34 relatively bright carbon-enhanced metal-poor (CEMP) stars with [Fe/H] < -2 and [C/Fe] > +0.7, identified from among candidate very metal-poor stars observed by the RAVE survey. Although RAVE does not obtain carbon abundance estimates, medium-resolution (R ~ 1,800) spectroscopic follow-up of some 1700 RAVE stars indicated a total sample of approximately 150 CEMP candidates. Once they were identified as CEMP stars, we used the South African Large Telescope (SALT) with the High Resolution Spectrograph (HRS, R ~ 34,000) to obtain high-S/N, high-resolution data for a sample of well over 100 CEMP stars. The subset of 34 stars we report on here includes objects with the lowest metallicities and highest [C/Fe] ratios. We obtain stellar parameter estimates, as well as [C/Fe], [Sr/Fe], [Ba/Fe], and [Eu/Fe] ratios, allowing for classification into the four CEMP sub-classes defined by Beers & Christlieb (2005): CEMP-s, CEMP-r,

CEMP-i (-r/s) and CEMP-no. Once our analysis is completed, the full sample will be the largest abundance study of CEMP stars available, and will inform a number of fields, including first-star nucleosynthesis, the r-, s-, and i-processes in the early Universe, and Galactic chemodynamical evolution.

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