Among the most metal-deficient (iron-poor) stars in the Galaxy, JINA scientists have discovered that a large fraction of them – on the order of 20-25% -- exhibit strong absorption lines due to the presence of molecular carbon. CH, CN, and C$_2$ bands are quite prominent in medium-resolution optical spectra of these objects.

Carbon in these stars is likely created by massive first-generation stars in the early Universe.

High resolution spectroscopy with the European VLT 8m telescope has been used to verify the carbon abundances of these stars, and to produce a sample from which the absolute frequency of their occurrence can be derived as a function of metallicity, [Fe/H]. The observed distribution of [C/Fe] vs / [Fe/H] is shown above, based on work by Barklem et al. (2005).