



Contribution ID: 72

Type: **Poster** [Main Conference]

The Rise of Carbon in the Universe

Tuesday, 7 February 2017 16:45 (1h 15m)

We investigate the distribution of stellar carbon abundances in the early Universe and propose a scenario that includes primary carbon production by the massive first-generation stars, recorded in the atmospheres of CEMP-no stars (which show no over-abundances of neutron-capture elements), and secondary carbon production by subsequent generations of AGB stars, recorded in the subset of mass-transfer binaries now observed as CEMP-*s* stars (which exhibit strong over-abundances of neutron-capture elements). Additionally, we investigate the contrasting behavior of CEMP stars with their more metal-rich counterparts, focusing on their kinematics, spatial distribution, and elemental abundances, in order to constrain the chemo-dynamical history of the Galaxy, from the earliest stars to the present.

References:

Placco, V. M., et al. (2016), ApJ, 833, 21

Yoon, J., et al. (2016), ApJ, 833, 20

This work received partial support from PHY 14-30152; Physics Frontier Center/JINA Center for the Evolution of the Elements (JINA-CEE), awarded by the US National Science Foundation.

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Session Classification: Poster session