

# CEMP Stars as Probes of First-Star Nucleosynthesis, the IMF, and Galactic Assembly



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## Abundances and Kinematics of CEMP stars - A new classification

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The elements locked up in old, metal-poor stars carry a wealth of information on the properties of the early Universe and how it evolved. Stellar abundances are fossil records of the physical conditions in the interstellar medium and of the progenitors that created the material the low-mass stars formed from. All heavy elements show a large star-to-star abundance scatter at low metallicities, which typically hides the fact that several processes and formation sites at early times created different amounts of a given element under different conditions. Using stellar abundances, we can explore the neutron-capture processes and learn about the origin of the heavy elements from a number of formation sites that host these processes. Meanwhile, kinematics will allow for an exploration of the CEMP occurrence in various Galactic components.

I will discuss abundances and kinematics of the old carbon enhanced metal-poor (CEMP) stars in which we have explored the behaviour of a large number of heavy elements. I will show how we can use Sr and Ba to classify them and how we can derive their metallicities in a new and faster way.

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