

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



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## Chemical enrichment and ionizing escape fraction from observations of GRBs

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Gamma-ray bursts can be seen to very high redshifts, and the bright power-law continua of their afterglows provide ideal backlights for absorption lines studies. I will review what we have learnt from GRBs about evolving chemical abundances in the early universe; and consider the implications of the high HI column densities seen on the sight lines to GRBs for the escape fraction of ionizing radiation from massive stars. I will also review the importance of the kilonovae accompanying short-duration GRBs for the nucleosynthesis of heavy elements.

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