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Chemical enrichment and stellar population age

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The supernovae of first stars produce metals that change the star formation mode in the early Universe from a top-heavy to the present-day IMF. However, the efficiency and governing processes of metal mixing are still unknown. By analysing cosmological simulation of the first galaxies, we find a strong correlation between metal mixing efficiency and time from star formation, whereas the total stellar mass in the halo only shows a weak correlation. The enrichment of a halo proceeds efficiently and after 10 million years already 50% of the hydrogen is mixed with metals on average. I will present a simple analytical prescription of metal mixing and demonstrate how it can be used to improve the sub-grid physics of semi-analytical simulations of EMP star formation and the chemical evolution of Milky Way progenitors.

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Talk/Poster

Poster

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