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CEMP stars: their origin and connection with stars that reionized the Universe

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The carbon enhanced metal poor (CEMP) stars are of immense importance as they likely carry signatures of first few generations of stars in the Universe. At the observational front there has been a tremendous advance in our ours understanding of CEMP stars, and recently theoretical studies have provided new insights. Nevertheless, the origin of CEMP stars, and in particular that of their subtypes (e.g. CEMP-no, -r) remains under debate. Our investigation into the origin of CEMP stars and their sub-groups with the EAGLE cosmological hydrodynamical simulation show that the galaxy building processes e.g. the feedback plays a crucial role in the formation of CEMP stars by creating a poorly mixed interstellar medium. In this picture, various groups of CEMP-stars form during different temporal stages of the bursty star formation in first galaxies. Our predicted spatial distribution of CEMP stars in the Milky Way is in good agreement with the existing data. We also claim that the CEMP-no stars are the siblings of the first stars that reionized the Universe.

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