
Does proton ingestion lead to unusual neutron caputre nucleosynthesis?

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Abstract

At low metallicity, low-mass stars behave very differently from their high-metallicity cousins. During episodes of intense helium burning (both core and shell flashes), convection can lead to protons being drawn down into hot, carbon-rich regions. These so-called 'proton ingestion episodes' are not well modelled by the current generation of stellar evolution codes, but we may appeal to hydrodynamic simulations to help improve the situation. The results of these simulations suggest that a substantial supply of carbon-13 (and hence a supply of neutrons) can readily be produced in these episodes. I will discuss how these episodes can affect the standard picture of s-process nucleosynthesis and whether proton ingestion episodes may explain the enhancements of both s- and r-process elements observed in a large fraction of the carbon-enhanced metal-poor stars.

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