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# Neutron capture nucleosynthesis in zero and very low metallicity rotating massive stars

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In the last years observations of Fe-poor stars have made possible to have detailed measurements of their surface chemical composition. These objects are the perfect laboratories in which is possible to investigate the differences among the possible astrophysical sites of element production, from the lightest ones to the neutron capture elements. In fact, iron poor stars probably formed during the very early epochs of the evolution of the Universe, hence the study of their abundance patterns may help to constrain the nucleosynthetic yields of the first supernova explosions. A number of Fe-poor stars shows not negligible abundances of neutron capture elements relative to iron, which are produced in stars through the slow neutron capture (*s*-process) nucleosynthesis. Since the efficiency of this process scales with the initial metallicity, no production of elements heavier than Zn is obtained in classical models of low metallicity massive stars. A possible scenario which aims to explain this unexpected chemical composition is that iron poor stars formed out from gas clouds polluted by the supernova yields of rotating massive progenitors. Rotation at low metallicity, in fact, can considerably boost the neutron capture nucleosynthesis in massive stars through an efficient activation of the neutron sources. In this talk, I will discuss the effect that rotation introduces in the yields of two typical massive stars, a 15 and 25 $M_{\odot}$ stars, at zero and very low metallicity, with a particular focus to the nucleosynthesis of heavy nuclei.

## Session

Stellar nucleosynthesis

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