

The production of heavy elements from rotating massive stars in the Galaxy

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Massive stars play a crucial role in the chemical evolution of galaxies, particularly enriching the interstellar medium with heavy elements. Recent stellar modelling studies have highlighted the beneficial effects of rotation in massive stars, enhancing their nucleosynthesis especially at low metallicities, where stars are expected to rotate faster. Indeed, once rotation is taken into account heavy elements are importantly synthesized in massive stars through s-process during their lifetime, and possibly through r-process upon their death. In this way, the yields from rotating massive stars become a valuable ingredient for Galactic chemical evolution models to explain the abundances measured in stars.

In this talk, I will present the results coming from the GEMS chemical evolution model, which includes the nucleosynthesis of massive stars with a distribution of rotation velocities. The model reproduces the scatter visible in the observations, and is able to explain the evolution of key heavy elements. This approach allows us to derive significant constraints on the production sites of heavy elements.

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