Nuclear Physics in Astrophysics XI



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Nitrogen and Fluorine production in the early Universe

Monday 16 September 2024 10:35 (15 minutes)

New rotating stellar models for the first generations of massive stars will be presented. Their results on nucleosynthesis will be compared with observed composition of very iron-poor stars and with the composition recently inferred by spectroscopy in high redshift galaxies by the JWST. We shall show that both fast-rotating Population III stars and/or non-rotating very massive stars up to 10,000 solar masses can reproduce the high N/O ratios observed in high redshift galaxies. We will also show the significant contribution of rotating very metal-poor stars on fluorine enrichment. Finally, we will discuss the impact of different implementations of the physics of rotation in stars, focusing on their impact on stellar nucleosynthesis.

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