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^{26}Al : how to model a short-lived radioactive isotope - from a 1D to a 2D approach

Thursday 19 June 2025 15:00 (15 minutes)

^{26}Al is a short-lived radioactive nucleus ($\tau_{1/2} \sim 1$ Myr) that can be used as a tracer of active star formation regions. In the past decades, observational data were collected in the Milky Way by γ -satellites as COMPTEL and INTEGRAL and I will show how we can reproduce them via chemical evolution models. The starting point is adopting a 1D chemical evolution model of the Milky Way. By making assumptions regarding the star formation rate (SFR), the initial mass function (IMF) and the stellar yields this approach puts new constraints on the production of ^{26}Al by nova systems. I further investigated this topic adopting a 2D chemical evolution model to account for the dishomogeneous distribution of ^{26}Al in our Galaxy arising from the spiral arm pattern observed and by exploring different environments, such as the Large Magellanic Cloud, in order to make predictions for COSI, the new γ -ray satellite to be launched in 2027.

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