Contribution ID: **20** Type: **Oral Contribution**

The early chemical evolution of the Sagittarius dwarf galaxy

Tuesday 10 June 2025 12:30 (20 minutes)

The Sagittarius (Sgr) dwarf galaxy experienced its first in-fall into the Milky Way (MW) about 5 Gyr ago. As it is being tidally stripped by the MW, its core and two stellar streams are now visible in the Sky, as well as various associated globular clusters. Given its proximity, it is an ideal test-bed for galactic chemo-dynamical models. So far, studies have typically focussed on metal-rich and relatively young stars, given that they are the prevalent population. Further complicating the study of the oldest/metal-poor stars is the strong overlap in the colour-magnitude diagram between the Milky Way bulge population and stars in Sgr. However, the most metal-poor stars are key to understand the early chemical evolution of Sgr.
My talk will focus on the nucleosynthetic channels that are responsible for the production of s-, i- and r-process elements in Sgr, especially during its chemical evolution at early times. I will present the most extensive chemical abundance analysis at the lowest metallicities and connect it to the more studied metal-rich regime, also providing a complete panoramic of the system's chemical evolution. I will show that the interstellar medium of Sgr may have retained yields from more energetic Population III and II supernovae than those imprinted in the stars accreted from the Milky Way's building block. Additionally, the lack of a particular population of Carbon-enhanced stars, linked to the first supernovae, would suggest the need for a new definition for this class of stars, which should be calibrated on the average [C/Fe] of a given system.

Author: Dr SESTITO, Federico (University of Hertfordshire)

Presenter: Dr SESTITO, Federico (University of Hertfordshire)