

Contribution ID: 122

Type: not specified

Myths and challenges behind the formation of the Galactic disc

Monday 3 February 2025 17:05 (25 minutes)

The stars in the local stellar disc of the Milky Way (MW) exhibit a bimodal distribution in the chemistry of their alpha-process elements. This creates two distinct sequences: the high and low-alpha discs. Numerous hypotheses have been proposed to explain the origin of this bimodality, including the 'two-infall'model, which suggests two distinct epochs of gas accretion. This model is compatible with the recent discovery of an ancient and massive Galactic merger, the Gaia-Sausage Enceladus (GSE), which could have contributed the metal-poor gas needed to fuel the formation of the low-alpha sequence. In this talk I will analyse the Auriga galaxy simulations, which have been shown to feature GSE-like mergers and chemical distributions comparable to the high and low-alpha discs. I will investigate the various formation scenarios that can form a chemical bimodality, and show that these are not reliant on a MW-like accretion history or GSE-like merger event.

Primary author: ORKNEY, Matthew (ICCUB (Universitat de Barcelona))

Co-authors: LAPORTE, Chervin; Prof. GÓMEZ, Facundo; Prof. MARINACCI, Federico; Dr GRAND, Robert; Dr PAKMOR, Ruediger; Prof. SPRINGEL, Volker

Presenter: ORKNEY, Matthew (ICCUB (Universitat de Barcelona))