Contribution ID: **24** Type: **not specified**

Tracing Pop~III supernovae with extreme energies

Thursday 18 May 2023 12:00 (30 minutes)

The Sculptor dwarf spheroidal galaxy is old and metal-poor, making it ideal to study the earliest chemical enrichment in the Local Group. We followed up the most metal-poor star known in this (or any external) galaxy, AS0039, with high-resolution ESO VLT/UVES spectra. Our new analysis confirmed its low metallicity, [Fe/H]=-3.90, and that it is extremely C-poor, with [C/Fe]=-0.33. This adds to the evidence of Sculptor being intrinsically C-poor at low [Fe/H]. A re-analysis of known extremely metal-poor stars in Sculptor, shows clearly that these peculiarities in Sculptor reach beyond carbon. This unique abundance pattern in Sculptor indicates an enrichment from a Pop~III star with high explosion energy, solidifying this galaxy as one of the benchmarks for understanding the energy distribution of the first supernova in the Universe.

Presenter: SKULADOTTIR, Asa (University of Florence)

Session Classification: Day 4 morning