



Contribution ID: 48

Type: **Talk**

The GigaEris Simulation: Stellar clusters in MW-sized galaxies at $z > 4$

Monday, 19 August 2024 09:30 (20 minutes)

The GigaEris simulation is a cosmological, N-body hydrodynamical “zoom-in” simulation of the formation of a Milky Way-sized galaxy with the unprecedented resolution of better than a thousand solar masses, encompassing of order a billion particles within the refined region. The simulation employs a modern implementation of smoothed-particle hydrodynamics, including metal-line cooling and thermal diffusion. In this talk, we will use our ability to resolve star clusters to show some very good candidates for blue proto-Globular clusters (GC) that have properties consistent with those of Globular Clusters of massive present-day spiral galaxies. These proto-GC are born near dark matter halos, with the exception of the oldest object, which appears to be the perfect GC at first but is actually a stripped compact dwarf galaxy that has interacted with the main halo and has lost its entire dark matter content due to tidal mass loss. Furthermore, we investigate nuclear star cluster formation in the progenitor of a Milky Way-sized galaxy for the first time using a cosmological simulation, as well as its relation to the assembly and evolution of the galactic nuclear region as.

Affiliation

Department of Astrophysics, University of Zurich, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland

Current Position

PhD Student

Primary author: VAN DONKELAAR, Floor (Department of Astrophysics, University of Zurich, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland)

Presenter: VAN DONKELAAR, Floor (Department of Astrophysics, University of Zurich, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland)

Session Classification: Formation of dense stellar systems across cosmic time

Track Classification: Formation of dense stellar systems across cosmic time