ID de Contribution: **10**   Type: **Oral presentation**

Mass-Metallicity Insights from Extreme Low-Mass Galaxies

During this talk, I will be discussing our findings on the mass-metallicity relation (MZ) in low-mass galaxies. Our sample consists of eight galaxies at a redshift of 7, which we identified in the JWST/NIRSpec data of the lensing cluster Abell 2744 as part of the JWST Cycle 1 program, UNCOVER. By combining ultra-deep NIRSpec observations with the strong gravitational lensing boost of Abell 2744, we were able to derive the first spectroscopic constraints on the prevalence of faint galaxies and their ionizing properties during the first billion years of the Universe.

We used the strong lines method with the new metallicity calibrations to determine the metallicities of the galaxies. We then obtained the MZ relation and star-formation-rate (SFR)-MZ relations at this redshift. Our best-fit relation shows a similar slope to the FIRE simulations but with an upward shift.

Overall, we found that these low-mass galaxies have slightly higher metallicities than expected from extrapolation from their massive counterparts and theoretical predictions of galaxy formation. These higher metallicities may indicate weaker outflows and a lower efficiency of gas removal. The observed dispersion can also be the consequence of highly stochastic star formation and ISM enrichment, which is expected in these low-mass systems.

Astrophysics Field

Not in the above

Day constraints

not Thursday morning

Auteur principal: CHEMERYNSKA, Iryna (Institut d'Astrophysique de Paris)

Co-auteur: ATEK, Hakim (Institut d'Astrophysique de Paris)

Orateur: CHEMERYNSKA, Iryna (Institut d'Astrophysique de Paris)

Classification de Session: Session 4