

Stellar Populations: Data Mining JWST

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Populations of stars in galaxies can tell us about how those galaxies evolved over time. New observations from the James Webb Space Telescope (JWST) will allow us to measure what is going on in populations of stars in galaxies at higher redshifts than previously possible. The database of accumulated observations is made available for astronomers to investigate. This is a great opportunity for a postgraduate student to explore data from the distant Universe.

This project will focus on observations taken with the JWST Near InfraRed Spectrograph (NIRSpec, see https://www.nasa.gov/mission_pages/webb/observatory/) to mine the database of exiting JWST spectra of galaxies at redshifts around cosmic noon ($z \sim 2$) and beyond. The era of cosmic noon has now been well studied for its star formation. However, this project will aim to uncover what data are available for more passive systems, as galaxies evolve from star forming to passive states. The way in which galaxies evolve between these states can be studied best through spectroscopy, which has the potential to tell us about the history of star formation, element abundance enrichment and evolution of the distribution of initial stellar masses, with time.

A willingness to learn about astronomical databases and an interest in interpreting observations are required for this project.

For more information on this project please contact Dr. A.E. Sansom (AESansom@uclan.ac.uk).

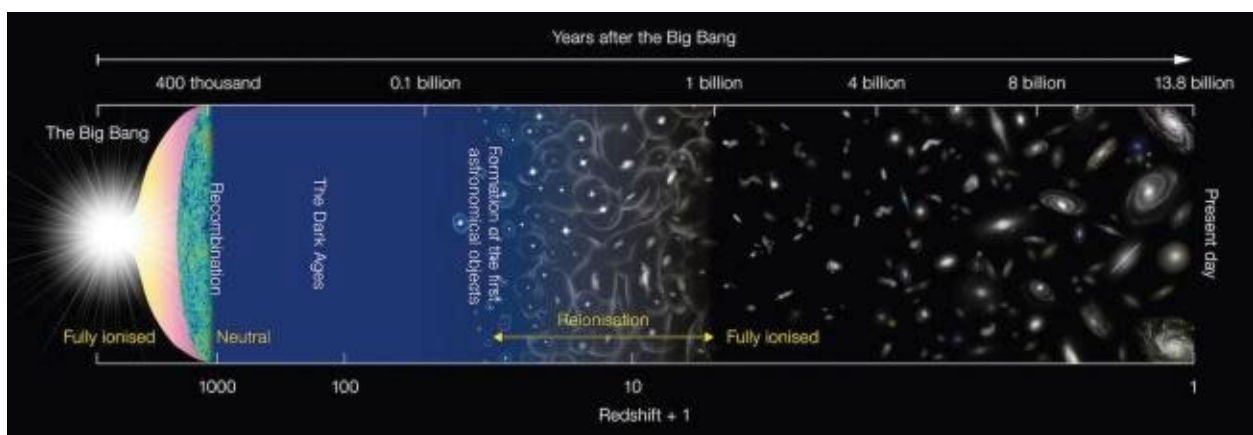


Figure: Schematic illustration of galaxy formation and evolution with Cosmic time (from <https://phys.org/news/2021-08-cosmic-galaxy-evolution-metals.html>).