The stellar content of NGC 6822 with JWST

We present the NGC 6822 medium GTO program, first results and combined NIRCam and MIRI CMDs. JWST MIRI and NIRCam imaging observations of the isolated metal-poor galaxy NGC 6822 were obtained in Cycle 1 (GTO Program ID 1234) producing an inventory of star formation and dust life cycles at high resolution. Similar to Spitzer studies of the Magellanic Clouds (SAGE), NGC 6822 is metal-poor ([Fe/H]=-1.2), making it a compelling target for studying stellar evolution as it is thought to have conditions similar to galaxies at the peak star formation epoch in the Universe. For the photometry, we use StarbugII that we developed for complex and crowded fields taken with JWST. With the high sensitivity instruments on JWST, we have deep spatially-resolved photometry of individual sources which are bright in the infrared, reaching 6 magnitudes deeper than any previous IR study of the galaxy. We detect to a depth just above the main sequence turn-off and see clear evidence for multiple aged populations within the post-main sequence stars and young stellar objects. Of particular interest are the high dust producers - unlike our galaxy where low- and intermediate-mass stars provide substantial amounts of dust via mass loss during the Asymptotic Giant Branch (AGB) phase, high redshift galaxies simply lack the time to have <5 solar mass stars evolve onto the AGB and produce dust. As such, studying intermediate- to high-mass evolved stars in an isolated galaxy whose physical properties resemble those at z=2 may be key to understanding dust formation within galaxies as the universe evolves.