

Dan Coe – Colloquium Seminar – April 13, 2023  
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Title: JWST results on distant lensed galaxies and stars in the early universe

Abstract: With the Hubble Space Telescope, we looked back in time 13.4 billion years and studied galaxies 97% of the way back to the Big Bang. But the most distant galaxies were too small and faint to study in detail with Hubble, leaving us with many questions. When did the first galaxies form? Did any early galaxies look like our Milky Way? And what were they made of? JWST is beginning to answer these questions and pose new ones. I will discuss early results, focusing on my group's work studying distant galaxies magnified by gravitational lensing. The combined powers of lensing and JWST are revealing small details within early galaxies, all the way down to individual stars. I will present our new JWST spectroscopy results on the lensed star Earendel observed 13 billion years ago, alongside lensed star clusters a mere parsec across. I will show the elements revealed in lensed galaxies even more distant, including MACS0647-JD. And I will show a few galaxies that turned out to be not so distant after all. Our public data, science papers, and beautiful JWST images are available at our website [cosmic-spring.github.io](https://cosmic-spring.github.io).