Astrophysics Seminar

Monday, October 23, 2017

Katherine Whitaker

University of Connecticut

The Cosmic Life Cycle of Massive Galaxies

Over the last few decades, astronomers have progressed from archeological studies of nearby galaxies to direct observations of the early universe. We have uncovered billions of years of cosmic growth that present new challenges to galaxy formation theories. In this talk, I will review the recent innovative techniques developed to probe the distant universe, and the key observations constraining the formation histories of galaxies over the past 11 billion years. We have discovered a population of surprisingly compact and massive “red and dead” (quiescent) galaxies that are no longer actively forming stars. The physical mechanisms responsible for shutting down star formation and the subsequent buildup of this quiescent population at such early times is one of the most outstanding questions in astrophysics today. We don’t yet understand why these enigmatic galaxies are so compact, with sizes a factor of 5 smaller than nearby galaxies of similar mass. I will present promising paths forward towards solving this puzzle that leverage the capabilities of the Hubble Space Telescope, as well as a look toward the future with exciting upcoming public facilities.

3:30pm in CAS 502. *Refreshments served at 3:15pm in CAS 500.*

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Next Week

Adam Riess

Johns Hopkins & STScI