

Colloquium

SFB 956

Conditions and Impact of Star Formation

27 April 2020

Monday 3:30 pm

Physikalische Institute Köln

Video Stream Host: [Stefanie Walch-Gassner](#)

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Physical Conditions for Galaxy Evolution across Cosmic History as Revealed by their Cold Gas Content

The formation of stars is both fueled and controlled by the properties of the interstellar medium (ISM) in galaxies. I will outline how the ISM properties of galaxies evolve in different environments throughout 13 billion years of cosmic history based on some of the most detailed recent observations obtained with the most powerful facilities operating at radio to submillimeter wavelength such as the Karl G. Jansky Very Large Array (VLA) and the Atacama Large sub/Millimeter Array (ALMA). I will describe new results from the VLA COLDz and ALMA ASPECS molecular line scan surveys, and from targeted multi-wavelength studies of main sequence galaxies and massive dusty starbursts out to the highest redshifts. I will show how these results provide a consistent view of the full baryon cycle from gas to stars, where they hint at additional complexities, and where they challenge our current understanding built on simulations. I will conclude by discussing how planned and upcoming facilities like the Next Generation Very Large Array (ngVLA), the Square Kilometer Array (SKA), and CCAT-prime will provide new avenues towards overcoming some key challenges in our current understanding.