

TUESDAY

MARCH 15

12:30 P.M.

RM 184 NSH

Understanding Galaxy Evolution with Massive Starburst Galaxies

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We are constantly intrigued by how dramatically galaxies evolve when we probe closer to the cosmic dawn. Ten billion years ago, galaxies were forming stars ten times more fiercely than they do today. This phenomenon can be understood in the framework of cold dark matter simulations only if star formation is suppressed in massive dark matter halos. However, the physical mechanisms responsible for the suppression are unclear. Starburst galaxies in massive halos offer a unique laboratory to constrain the suppression processes, because, unlike most galaxies, such processes have apparently failed to operate in these starbursts. Thanks to the Herschel Space Telescope and the South Pole Telescope, for the first time we have identified a rare sample of gravitationally lensed or hyperluminous starbursts at the peak epoch of cosmic star formation. I will show how high-resolution multi-phase observations have helped us gain a comprehensive understanding of these unusual galaxies. I will also describe an ongoing project aimed at constraining the halo-scale gas supply of such massive starbursts. By contrasting with normal galaxies, the results of these studies will be fundamental to a physical understanding of galaxy evolution.