

Regulation of Star Formation: Top-Down, Bottom-Up, or Somewhere in Between

Viewed from the galactic scale, the central fact about star formation is how slowly it proceeds. Typical spiral galaxies require multiple Gyr to convert an appreciable fraction of their gas to stars, much longer than either the galactic orbital timescale or the dynamical times within molecular clouds. In this talk I review theoretical models that attempt to explain this fact. These models can be broadly categorized into top-down approaches, where star formation is regulated exclusively by stellar feedback operating at galactic scales, and bottom-up approaches, where regulation of star formation occurs primarily at small scales within star-forming clouds. I point out the advantages and disadvantages of each of these approaches, and argue that a synthesis will be required to make sense of the available data.