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**Galaxies across cosmic time - What shapes galaxies and their evolution?**

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Galaxies are the basic building blocks of the observable Universe, exhibiting a wide range of shapes, and varying by orders of magnitude in their mass and size. Over cosmic time, galaxies have undergone significant metamorphosis driven by a variety of physical processes, which include gas accretion, star formation, and feedback effects. In dense environments, galaxy interactions and mergers can completely transform the morphology and internal properties of galaxies. The presence of supermassive black holes at their centers also influences the growth of galaxies. The progress in our understanding of galaxy formation and evolution is the result of ambitious observational surveys done with the Hubble Space Telescope, and some of the largest ground-based telescopes. The interpretation of these observations are aided by extensive cosmological simulations that incorporate the detailed physics that govern galaxy growth and assembly. In this talk, I will give an overview of how the various physical processes affect galaxy evolution, and highlight some of the missing pieces of the puzzle of galaxy transformations.