

Physics Colloquium

UNIVERSITY OF MISSOURI-KANSAS CITY
DEPARTMENT OF PHYSICS

Professor Greg Rudnick
University of Kansas

"How Galaxies Grow: A Tale of Growth spurts, Early Achievers, and Late Bloomers"

The evolution of galaxies over cosmic time takes a diverse set of paths, and results in the galaxy population that we see in the present-day Universe. Understanding the processes that shape galaxies is best accomplished by observing them in action, when the galaxy population was much younger than it is today. This has only become possible in the last decade thanks to the advent of large-aperture ground-based telescopes, the NASA great observatories, and large surveys that have exquisitely characterized the local Universe. I will describe results from a set of observational projects that study the evolution of the galaxy population over most of cosmic time, taking advantage of the local anchor provided by wide-field shallow surveys and very deep observations of the distant Universe. I will demonstrate that we now have an increasingly detailed view of the massive galaxy population when the Universe was very young and that we can determine the evolution in the ensemble properties of galaxies. I will also show how we have used observations of the clusters of galaxies when the Universe was half its current age to determine whether the evolution of galaxies is effected by the environment in which they live. The future of this field is bright and I will briefly discuss some newly started projects that will greatly increase the precision with which we can constrain the galaxy population over a range epochs and environment.

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Coffee at 3:10, Colloquium at 3:30 in Room 310