

UCLA Division of Astronomy & Astrophysics

Astronomy Colloquium

Wednesday, April 29 at 3:30 PM
Room 1-434 PAB



Dr. Anna de Graaff
MPIA/Harvard

**The red and distant Universe revealed by
JWST/NIRSpec**

In its few years of science operations, the James Webb Space Telescope has revolutionized our understanding of the early Universe. The NIRSpec instrument in particular has provided a remarkably detailed view of the physical processes – star formation, feedback, and the growth of massive black holes – that shaped the faintest, reddest, and most distant galaxies. Among a wealth of discoveries, one overarching surprise has emerged: galaxies in the early Universe formed and matured extremely fast. Massive galaxies with old stellar populations exist already in the first billion years of the Universe, with some showing morphologies reminiscent of our own Milky Way. Other galaxies appear to host unexpectedly massive black holes, possibly revealing a mysterious new mode of black hole accretion. The potential implications on galaxy formation models are profound, as current models struggle to reproduce such rapid galaxy assembly. I will present a brief overview of key extragalactic surveys from JWST/NIRSpec, focusing on the major discoveries that they have enabled and the challenges that remain.

Hosted by professors: Smadar Naoz, Alice Shapley, Erik Petigura