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### **Galaxies and supermassive black holes in the early Universe: insights after 1 year of JWST**

Identifying the first galaxies that emerged in the early Universe, characterising the properties of their stars and explaining the presence of supermassive black holes in galaxies at the highest redshifts are among the key goals of observational astrophysics. With its massive increase in imaging and spectroscopic capabilities in the infrared, the James Webb Space Telescope (JWST) is making significant progress in all these goals. In my talk, I will review lessons learned on galaxies in the early Universe after 1 year of JWST data. I will focus on the first spectroscopic census of emission-line galaxies in the EIGER survey of distant quasar fields, that informs us about the typical properties of stars, the chemical enrichment of the Universe, the halo masses and environments of the rarest quasars and that shows direct evidence that galaxies reionized the Universe. I will also discuss the surprising discovery of a population of faint active galactic nuclei (AGN) that may help us understand the first supermassive black hole growth.



**Tuesday, 12.12.2023, at 16:45 h, HS C (Technik)**

Innsbruck Physics Colloquium,  
Organisation: K. Erath-Dulitz, H.-C. Nägerl, T. Schrabback