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# Dust Attenuation of Star-Forming Galaxies in the Early Universe with JWST

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Dust plays a fundamental role in shaping the formation and evolution of galaxies, regulating star formation through absorption and scattering of stellar light. The dust attenuation curve provides key insights into dust properties and their connection to the interstellar medium (ISM), yet its characteristics in the early Universe remain poorly constrained.

Using JWST/NIRSpec spectroscopy, we analyze a large sample of galaxies at z ~ 2–12, applying a customized SED-fitting approach to simultaneously characterize dust attenuation and global galaxy properties. We find evidence for a significant evolution in attenuation curves with redshift, suggesting changing dust grain compositions and production mechanisms. Additionally, we detect UV bump features in ~30 galaxies, including the most distant case at z = 7.55, placing new constraints on early dust enrichment. Our results provide crucial insights into the link between dust, star formation, and chemical evolution, shedding light on the earliest stages of galaxy assembly.

**Primary author:** MARKOV, Vladan (FMF, University of Ljubljana, Slovenia)

**Presenter:** MARKOV, Vladan (FMF, University of Ljubljana, Slovenia)

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