Großes Physikalisches Kolloquium an der Universität zu Köln

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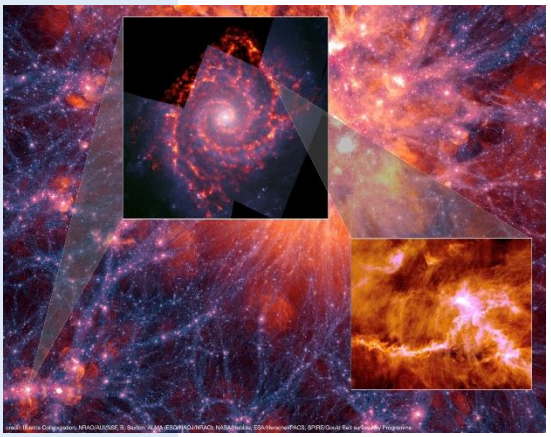
16^{30} Uhr
HS III

From cosmic web to molecular clouds: the multiple scales of galaxy evolution

The interstellar medium plays a central role in the galaxy evolution process; it is the reservoir that fuels galaxy growth via star formation, the repository of material formed by these stars, and a sensitive tracer of internal and external processes that affect entire galaxies (e.g. accretion and feedback). In this review talk, I will discuss how observations of the interstellar medium are shedding light on the vast range of physics and scales at play in the star formation and galaxy evolution processes, using results from recent observing campaigns with (sub)mm/radio facilities (IRAM, ALMA, JCMT, APEX) as well as large optical spectroscopic surveys (DESI). By connecting these observations with theory and simulations, a picture emerges where galaxy evolution is driven by gas availability on galactic- and molecular cloud-scales and the efficiency of the star formation process out of this gas, depending on local conditions in the interstellar medium.

These results highlight the multi-scale nature of star formation and galaxy evolution, and help draw a path forward to understand mass assembly in the Universe.



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