

Anatomy of a spiral galaxy: a close look at IC 342

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Abstract

PHANGS is providing the sharpest view so far on the interstellar medium and star formation across a representative sample of nearby star-forming galaxies, with large programs on ALMA, VLT, HST and JWST. By construction, the main sample is limited to galaxies visible from the southern hemisphere. As part of ongoing efforts to extend PHANGS to the northern hemisphere, here we present cloud-scale NOEMA CO(1-0) observations of the very nearby spiral galaxy IC342, paired with observations of atomic gas achieving exquisite physical resolution, unparalleled in other PHANGS targets thanks to the proximity of the source. Despite its relatively flocculent spiral nature, we demonstrate that molecular clouds in IC342 follow similar scaling relations as those in stronger spirals. We also study star formation efficiency per free-fall time, which closely clusters around a peak value of 0.45%. This is a first step towards a detailed characterisation of iconic spiral galaxies in the northern hemisphere, which complement the main PHANGS sample from the south and previous observations of M51.

My poster in zenodo.org can be found here