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Measuring gold molecular gas across cosmic time

Frias Castillo, M.

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Propositions
accompanying the thesis

Measuring Cold Molecular Gas Across Cosmic Time

1. Extreme systems can be found hidden within the main-sequence of ‘normal’ star-forming galaxies (Chapter 2).
2. The high incidence of cold molecular gas detections in unobscured quasars challenges the long-established view that these systems are gas-depleted (Chapter 3).
3. Given the lack of correlation between the molecular gas excitation and the physical properties of dusty star-forming galaxies, CO(1–0) remains crucial to robustly characterise the ISM conditions at high redshift (Chapter 4).
4. CO(1–0) and [CI](1–0) yield consistent gas mass estimates at high redshift, provided that consistent assumptions are made about their corresponding light-to-mas conversion factors (Chapter 5).
5. Interferometry is as much an art as a science, therefore care must be exercised when interpreting the results.
6. The significant observing time cost of high-redshift science should not be considered as an impediment but as a sign of the cutting-edge science being accomplished.
7. There are a wealth of discoveries waiting to be made in the archives.
8. An astronomer’s worth should not be measured in the number of published papers and accepted proposals.
9. Motivation is fleeting, while consistency will carry you across the finish line.
10. Our production system has to undergo a profound transformation if we are to reduce our impact on the environment.
11. The attention your cat demands from you is directly proportional to the importance of the zoom meeting you’re attending.

Marta Frías Castillo
Leiden, 20 June 2024