

**X48a Initial results of the CRISTAL Survey I. Overview and [C II] size measurements**

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One of the major achievements in extragalactic studies with ALMA is the detections of the [C II]158 $\mu$ m line emission in young star-forming galaxies during and after the Epoch of Reionization. With deep HST imaging and the launch of JWST, we are entering an era where stars and gas are studied in detail on kiloparsec scales. In this context, we present the overview and initial results of the ALMA Cycle 8 Large Program, CRISTAL Survey (PI: R. Herrera-Camus). CRISTAL targets 19 typical  $z \sim 4-5$  galaxies at kiloparsec resolution spanning a factor of 30 in stellar mass, and will produce detailed kinematic and morphological maps of the cool gas in and surrounding these galaxies. Individual [C II] sizes including merging systems are successfully obtained by modeling visibilities, where about half of them were not measured with the low-resolution data alone. The [C II] line emission is more extended than the rest-UV and FIR emissions by up to a factor of  $\sim 4$ . We plan to discuss the origin of this extended nature of the [C II] line emission by comparing size ratios with various physical properties.