

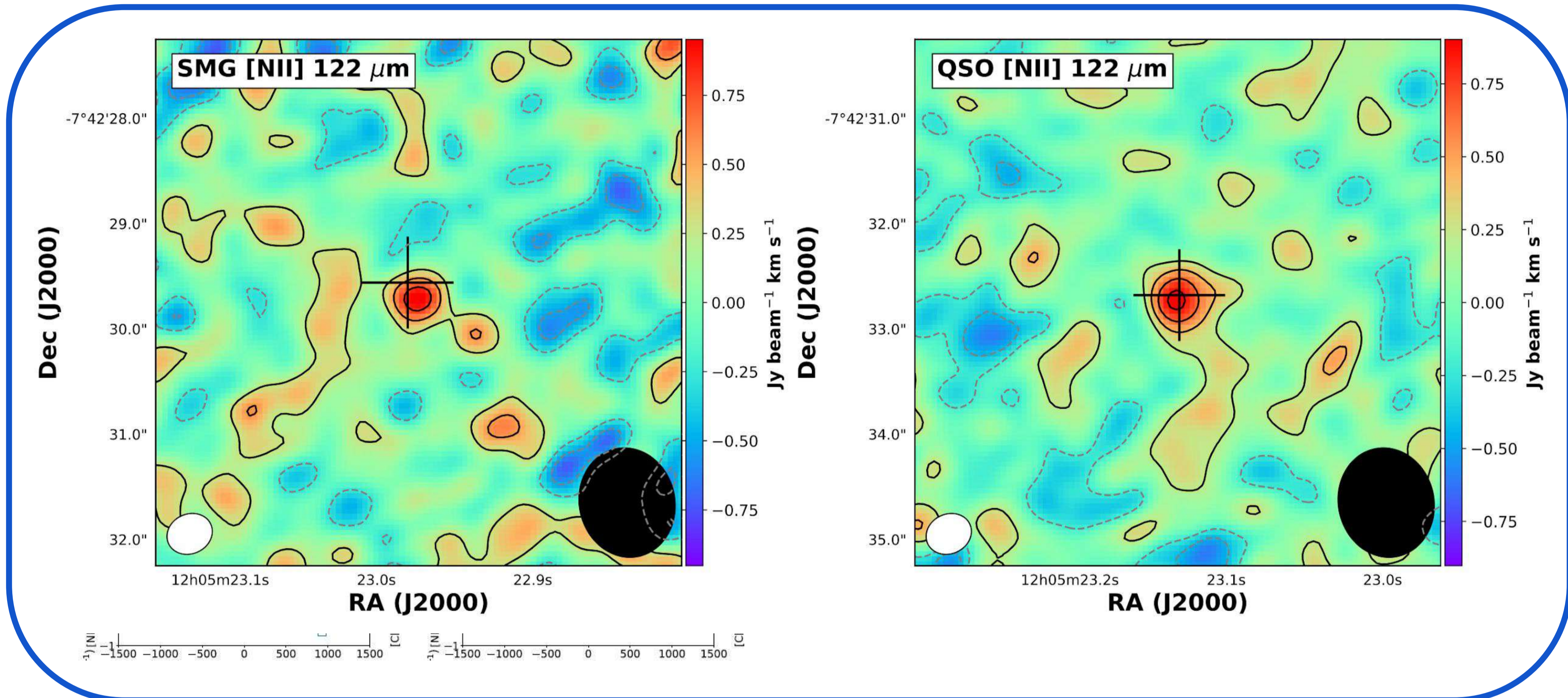
First [N II]122 μ m Line Detection in a QSO-SMG Pair BRI 1202-0725 at $z = 4.69$

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We report the first detection obtained with the Atacama Large Millimeter/submillimeter Array of the [NII] 122 μ m line emission from a galaxy group BRI 1202-0725 at $z=4.69$ consisting of a quasi-stellar object (QSO) and a submillimeter-bright galaxy (SMG).



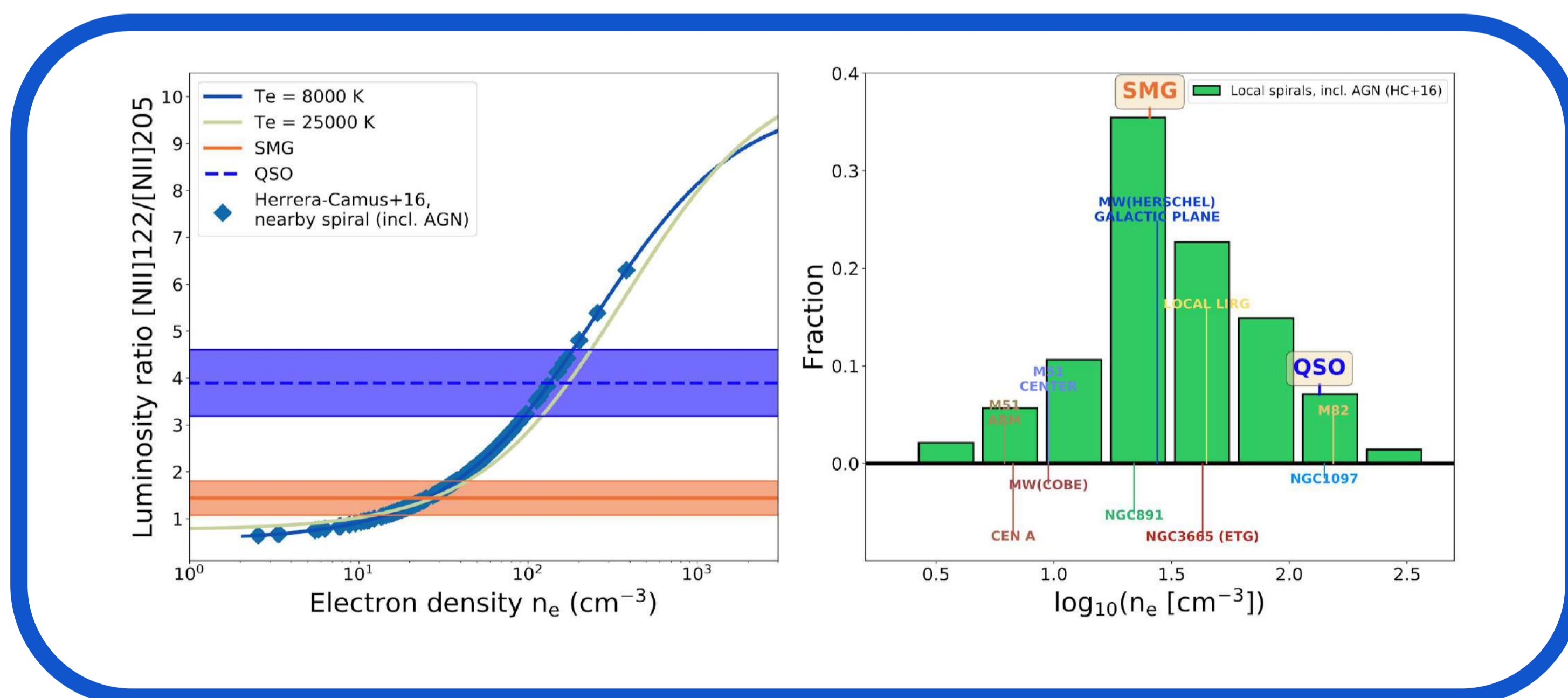
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The Band 6 observations were carried out in ALMA Cycle 2 program. A total of 39 and 40 antennas were used with the unprojected length between 15 and 348 m (C34-2/1) with a total on-source time of 58 minutes



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Combining this with a detection of [N II] 205 μ m line in both galaxies, we constrain the electron densities of the ionized gas based on the line ratio of [N II] 122/205.



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