

Using Very Large Array Data to Image the Ultra-Diffuse Galaxy AGC 749251 ()

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Ultra-diffuse galaxies (UDGs) have generated significant interest in recent years, as their stars appear too spread out relative to typical galaxies, and because some UDGs appear to have more than typical amounts of dark matter. The ALFALFA Survey has detected a number of UDGs in the field that are rich with neutral hydrogen (HI). We use the Karl G. Jansky Very Large Array (VLA) to image one of these HI-rich UDG, AGC 749251. We manually remove radio frequency interference, and reduce it using standard procedures in CASA. From the resulting data cubes we created 2D maps (moment 0 maps) and maps of the radial velocities of the HI gas. We find that the HI in AGC 749251 shows reasonably ordered morphology and rotation, and extends beyond the already extended optical emission. We estimate the source's inclination and rotation velocity, constraining the source's dark matter content. We also compare our results to other, non-ultra diffuse galaxies, and suggest that the rotation velocity seems low compared with other sources of similar mass. This work has been supported by NSF grant AST-1637339.

Publication:

American Astronomical Society, AAS Meeting #233, id.351.16

Pub Date:

January 2019

Bibcode:

2019AAS...23335116R



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