A Neutral Hydrogen Survey of the NGC 7332 Region with the Arecibo L-band Feed Array

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The NGC 7332/9 galaxy pair and the nearby dwarf KKR 73 are now revealed as part of a group of at least five galaxies: NGC 7332, NGC 7339, KKR 73, AGES J2238+2352 and AGES J2236+2344.

The zeroth moment map (right) shows the neutral hydrogen in the region: NGC 7339 and the two new AGES sources are detected. NGC 7339 appears to show a disturbed HI morphology, with an excess of gas near the position of NGC 7332 and a possible tail to the south. This is probably due to an interaction between the two galaxies.

The first moment map (left) shows the systemic velocity of the hydrogen in the group. It can be seen that the disturbed morphology of NGC 7339 is reflected in the disturbed velocity field of this region.

Summary

The AGES gridded beam shape was investigated using the DAOPHOT routine PSF within IRAF. This made a model beam using the ten brightest sources on the continuum map of the NGC 7332 region. The gridded beam was found to be within 2% of being round and to have a FWHM of 3.4 arcminutes. The sidelobes are found at a radius of around 6.5 arcminutes and have a level of 2 - 6 per cent (12 - 17 dB). The images (left) show both linear and logarithmic views of the best-fit Gaussian from PSF, the Residual of this model, and the combined Beam Map (model + residual). The radial profile (right) shows the beam power vs radius for the combined map.