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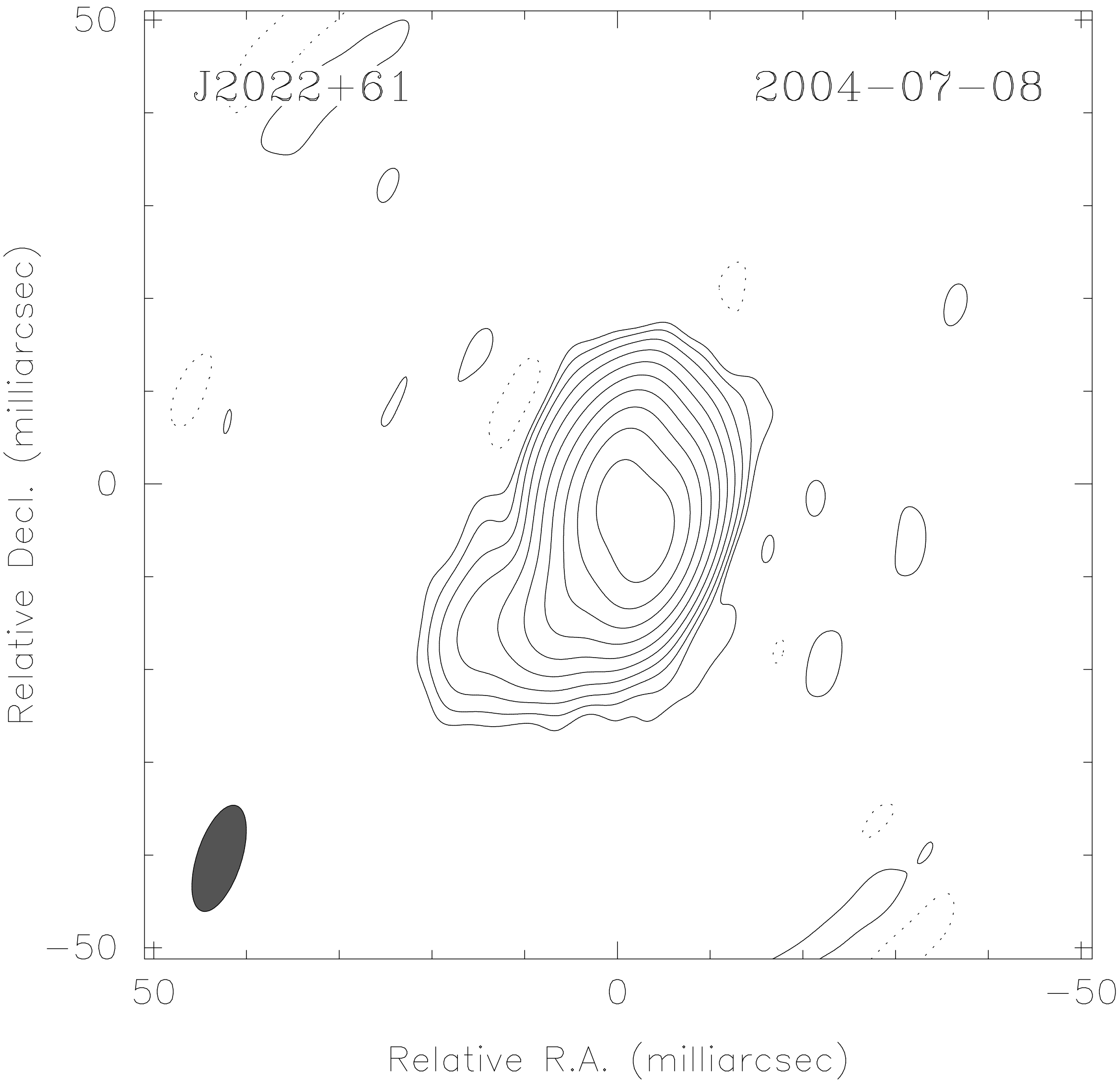
Summer Student VLBA Time Report

J2022+6136 has been classified as a core-jet source with a sub-luminal jet by Conway et al. (1994). However, it has also been classified as a compact symmetric object (CSO) by Tschager et al. (2000). The most interesting morphological feature is a third bright spot at right angles to the other two which has only been seen at 1.6 GHz (Conway et al. 1994; Polatidis et al. 1995). We propose to image J2022+6136 at 1.4 GHz with at least three times better sensitivity than Conway et al. (1994) in order to detect this component. If it does appear to be a counter jet, this will place it as a core-jet source that is not strongly beamed in our direction. A small portion of the observation time would also be used to image the source at 330 MHz. There are no published maps of J2022+6136 at this frequency. This may help resolve the low frequency third component as well as provide for a spectral index map.

Although there was not enough data at 330 MHz to produce a good image, the source was imaged at 1.4 GHz and had a peak flux of 833.7 mJy beam^{-1}. This is much larger than the 674 mJy beam^{-1} peak flux seen by Conway et al. (1994) because our $u-v$ coverage was not good enough to resolve the two central peaks (FWHM 11.8×4.8 mas at $-17.9°$). We do confirm the presence of a counter-jet to the southeast of the brightest component. However, the desired sensitivity of 0.075 mJy beam^{-1} was not reached, as the image rms was $\sim$0.4 mJy beam^{-1}. There appears to be a non-closing amplitude error that cannot be found. Therefore, the counter-jet structure cannot be probed anymore than was done by Conway et al. (1994). Figure 1 is the image made at 1.4 GHz.

Conway, J. E., Myers, S. T., Pearson, T. J., Readhead, A. C. S., Unwin, S. C., Xu, W. 1994, ApJ, 425, 568
Polatidis, A. G., Wilkinson, P. N., Xu, W., Readhead, A. C. S., Pearson, T. J., Taylor, G. B., Vermeulen, R. C. 1995, ApJS, 98, 1
Tschager, W., Schilizzi, R. T., Rottgering, H. J. A., Snellen, I. A. G., Miley, G. K. 2000, A&A, 360, 887

Frequency: 1.504 GHz



Maximum: 0.8337 JY/BEAM

Contours (%): −0.12 0.12 0.24 0.48 0.96 1.92 3.84 7.68 15.35 30.71

Contours (%): 61.42

Beam: FWHM 11.95 x 4.80 milliarcsec, p.a. −18.0(718)