A polarization study of the radio galaxy 3C 129

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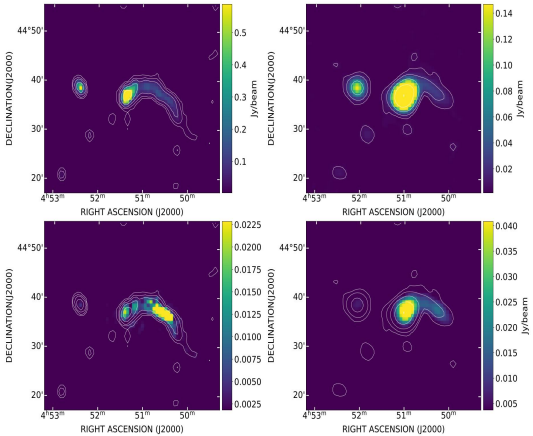


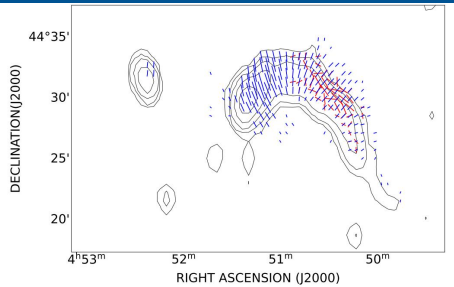
Total-intensity images (left column) and polarized-intensity images (right column) of 3C 129 at 1.4 GHz (top) and 6.6 GHz (bottom).

From the total-intensity maps, we can clearly see two bright cores, which were named as 3C 129.1 and 3C 129, the core on the west side shows a distinct jet. From the polarization images, jet structure corresponding to those in the total-intensity maps are clearly visible at all two frequencies.

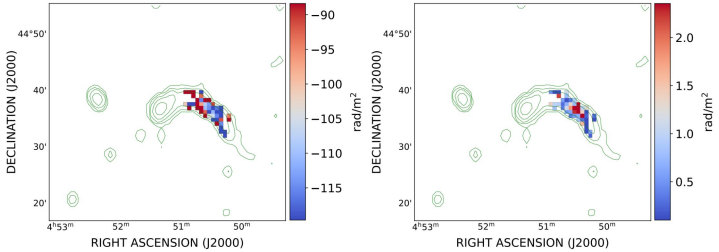
1.4 GHz ~ CGPS

6.6 GHz ~ SRT

Compared with 6.6 GHz, the magnetic field angle at 1.4 GHz obviously shows a more complex distribution. Inside the jet, the magnetic field is almost parallel to the direction of the jet, but near the edge of the jet, the direction of the magnetic field tends to be perpendicular to the jet, which may be related to the surrounding interstellar medium.

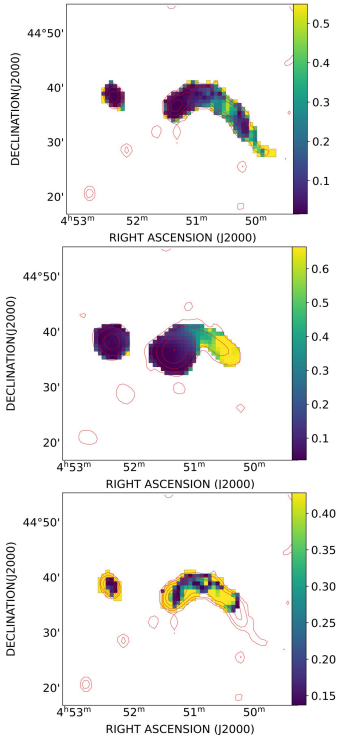


The projected magnetic field vectors, the red vector is the result of 1.4 GHz (corrected for RM) and the blue vector represents 6.6 GHz (not corrected for RM)



Left: Rotation measure image of 3C 129 with contours of total intensity at 1.4 GHz overlaid. Right: Error of rotation measure image.

The calculated RM is clustered at the tail of the jet, and the distribution of RM values in this part is relatively smooth, and the average value is 104 rad/m^2. This is similar to the conclusion obtained by Taylor et al. (2001)



Fractional polarization images of 3C 129 at CGPS (top left), SRT (top right) and their ratio(bottom). This implies that the polarized emission at 1.4 GHz and at 6.6 GHz