

A long title - whats that about?

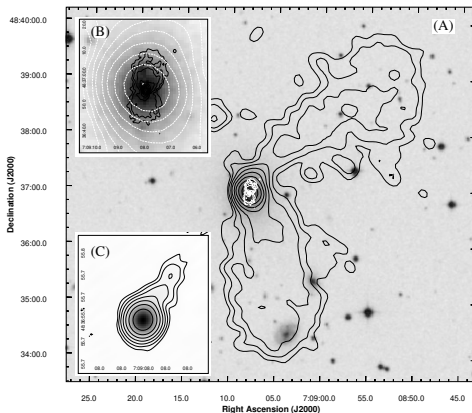
An even longer subtitle to take even longer time to read.

Soumyadeep Das

Centre for Astrophysics Research (CAR)
University of Hertfordshire
Hatfield (United Kingdom).

Overview of this Project

- Brightest Cluster Galaxy of Abell 569.
 - Two pairs of misaligned radio lobes at different scales : 100 kpc WAT FRI lobes and the 10 kpc bubble-like Seyfert lobes.
 - One-sided core-jet VLBI structure, jet aligned along NW FRI lobe.
 - Host galaxy ambiguous - Either elliptical/bulge-dominated or lenticular (So).
 - Small optical jet-like extension aligned along the VLBI jet.
-
- Imaged archival VLA and VLBA data at all available frequencies and scales - using AIPS and CASA.
 - Obtained spectral index images and calculated equipartition parameters and age estimates.
 - Also looked at optical HST images and X-ray images from Chandra and Einstein.



VLA radio contour images of NGC 2329 at different scales overlaid on the DSS POSS2 optical image. (A) 1.4 GHz 16'' VLA contours are in black, and 1.4 GHz 1'' VLA contours in white. (B) Zoomed in snapshot of the inner Seyfert lobes in black. (C) 4.99 GHz 4 mas VLBA radio contour image.

VLA Total Intensity & Spectral Index Images

- FRI lobes are much dimmer than the Seyfert lobes.
- FRI lobes are not edge-brightened and devoid of compact features like jet knots.
- Mean spectral index ($\alpha_{4.7}^{1.4}$) values-
 - Seyfert lobes : -0.75 ± 0.16
 - NW FRI lobes : -1.31 ± 0.18
 - South FRI lobes : -1.04 ± 0.13 .
- Spectral index across the FRI lobes in NGC 2329 is almost uniform without signs of any significant steepening.
- VLBI jet speed $\sim 0.75c$ - similar to FRI sources.

Acknowledgments

- The Project 'The Peculiar WAT NGC 2329 - Case for AGN Restart?' was conducted under the Visiting Student's Research Programme (NCRA-TIFR) and supervised Dr Preeti Kharb, NCRA-TIFR, India. Further works were done in collaboration with Prof Raffaella Morganti, ASTRON, and Dr Sumana Nandi, NCRA-TIFR.
- Sikora, M., Stawarz, L., & Lasota, J. (2007). Radio Loudness of Active Galactic Nuclei: Observational Facts and Theoretical Implications. *The Astrophysical Journal*, 658(2), 815–828. <https://doi.org/10.1086/511972>

I sincerely thank Dr Christopher Harrison, Dr Danielle Leonard, and Newcastle University for this interview.