

Tracing AGN feedback in powerful radio galaxies with VLBI

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The jets of powerful radio galaxies are known to play a vital role in regulating the gas distribution of the host galaxy as they push through the interstellar medium (ISM). Evidence for this feedback mechanism includes observations of fast outflows of neutral atomic hydrogen (HI) gas detected in absorption in a number of radio galaxies. However, detailed information on the complex interplay on parsec-scales is still extremely limited, but can be retrieved using Very Long Baseline Interferometry (VLBI). We have been conducting a study to locate and characterize the outflow of HI gas on parsec scales in a small, but diverse sample of young and recently restarted radio galaxies. In this talk, I will compare the differences and similarities of the properties of the HI outflows in our sample which indicate that the selected sources could represent different stages of evolution in jet-ISM interaction. Our results also provide important input for theoretical models and show the need for future larger sample studies with VLBI that enable a more detailed statistical analysis.