Cold gas in the center of radio-loud galaxies

Maccagni, Filippo

Stellingen

behorende bij het proefschrift

Cold gas in the centre of radio-loud galaxies

New perspectives on triggering and feedback
from HI absorption surveys and molecular gas

van

Filippo Marcello Maccagni

1. The detection rate of H I absorption in radio galaxies is 27% ± 5.5% and it varies neither with redshift (across the range $0.02 < z < 0.25$) nor with radio power (in the range $22.5 < \log P_{1.4\,\mathrm{GHz}}\,(\mathrm{W\,Hz^{-1}}) < 26.2$). *(Chapters 1 and 2)*

2. Strong interactions between the AGN and the circumnuclear cold gas are likely to occur in compact AGN because the radio jets clear their way through the surrounding medium. *(Chapter 1)*

3. Broad (FWHM $> 200\,\mathrm{km\ s^{-1}}$) and asymmetric H I absorption lines, which can trace a significant component of gas unsettled by the radio activity, are found only in powerful radio AGN, which have $\log P_{1.4\,\mathrm{GHz}}\,(\mathrm{W\,Hz^{-1}}) > 24$. *(Chapters 1 and 2)*

4. The kinematics of the H I gas allows to relate the time-scale of formation of the galactic disk to the life cycle of the nuclear activity, and reveal how cold gas can trigger a radio AGN. *(Chapter 4)*

5. Detecting atomic and molecular hydrogen in AGN in absorption and emission allows to constrain the triggering and fuelling mechanisms of young radio AGN. *(Chapters 4, 5 and 6)*

6. The absorption by atomic and molecular hydrogen observed in the young radio source PKS B1718–649 traces the fuelling of the AGN in this object. *(Chapters 4 and 6)*

7. The spark of love is often ignited amongst scientists venturing together on the quest of discovery.

8. Becoming a scientist also means keeping alive the child-like pleasure for knowledge.

9. Nowadays, even if observations are often reduced by automated pipelines, one should never forget to look at the data.

10. History teaches us that it is a mistake to repair the prejudices of the past with new inequities.