

Tuning in to the feedback bassline: revealing the operation of AGNs in galaxy clusters with high-resolution radio observations Timmerman, R.

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Propositions accompanying this thesis

Tuning in to the Feedback Bassline

Revealing the operation of AGNs in galaxy clusters with high-resolution radio observations

1. The duty cycle of an AGN results in significant time variability of the observables, which should be accounted for.

(Chapter 2)

2. Low-frequency radio observations are uniquely valuable to constrain the injection spectrum of a synchrotron spectrum.

(Chapter 3)

- 3. The volume occupied by the radio lobes produced by AGNs in the centers of galaxy clusters matches exactly with that of the ICM cavities detected in the X-ray band. (Chapter 4)
- 4. High-resolution Sunyaev-Zel'dovich surveys in the Northern hemisphere are needed to ensure the statistical completeness of galaxy cluster samples used by observatories in this hemisphere.

(Chapter 5)

- 5. When pushing the observational frontier of astronomy, contact with the raw data should never be lost.
- 6. Maintaining an archive of observations is critical for the productivity of any observatory.
- 7. Most future progress in the field of AGNs is likely to originate from research groups in which cutting-edge observations are combined with dedicated simulations.
- 8. The rate at which any academic work accumulates comments only asymptotically approaches zero over time.
- 9. Society, including its universities, exploits the passion scientists have for their research.
- 10. A significantly larger fraction of resources in academia should systematically be made available for high-risk research.
- 11. Although good communication in principle is all about how a message is received, the recipient should consider how and why a message was sent.
- 12. The correct time to start a vrijmibo is 16:00.

Roland Timmerman Leiden, 22 November 2023