Untangling cosmic collisions: a study of particle acceleration and magnetic fields in merging galaxy clusters

Osinga, E.

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Propositions

accompanying the dissertation

Untangling Cosmic Collisions

A study of particle acceleration and magnetic fields in merging galaxy clusters

by

Erik Osinga

1. The jets of active galactic nuclei are not significantly aligned in their orientation across large scales in the Universe (Chapter 2).

2. Low-mass galaxy clusters can also host radio halos (Chapter 3).

3. It is possible to construct high-quality images using the longest wavelength radiation that can pass through the Earth's ionosphere (Chapter 4).

4. The intracluster medium significantly depolarises background radio sources, and this effect can be used to infer the magnetic field properties of the medium (Chapter 5).

5. Faraday rotation and depolarisation are subject to different observational biases and combining both techniques gives a more complete picture of cosmic magnetic fields (Chapter 6).

6. Requiring authors to also publish their data and analysis techniques would greatly increase research productivity.

7. Cosmic magnetogenesis is one of the big astrophysical mysteries that will be clarified in my lifetime.

8. One of the positive aspects of the COVID-19 pandemic is the fast upsurge in the availability of live recordings, which will accelerate the training of experts.

9. Focus should not rest on the occurrence of an error in a project, but on the magnitude of its impact.

10. A good supervisor is as important as a good PhD candidate.

11. It is better to overestimate yourself than to underestimate yourself.

12. There was a different proposition here before, but it was worse than this one.

Erik Osinga
Leiden, November 2023