Radio emission from merging galaxy clusters : characterizing shocks, magnetic fields and particle acceleration

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Radio emission from merging galaxy clusters: characterizing shocks, magnetic fields and particle acceleration

1. Giant radio relics are tracers of shock waves in which particles are (re)accelerated by the diffusive shock acceleration mechanism.

   Chapters 2 – 12

2. Given the timescales related to AGN activity, synchrotron losses and the presence of shocks, there should be fossil AGN radio sources visible in every cluster at low frequencies.

   Chapters 2, 3, 11, and 12

3. The fact that no large radio relics have been found in relaxed galaxy clusters, indicates that relics trace merger shock waves and not external accretion shocks.

   Chapters 4 – 12

4. The compilation of large unbiased samples of radio relics and halos will be crucial for our understanding of shocks, turbulence, particle acceleration and magnetic fields in galaxy clusters.

   Chapters 2 and 4

5. The term "radio relic" is misleading and needs to be changed to "radio shock".

6. Too little attention has been paid to the development of an imager that can correct for the time and direction dependent LOFAR station beams.

7. Scientifically valuable observations can already be obtained below 30 MHz with LOFAR.

8. Radio frequency interference mitigation is critical if the GMRT wants to maintain its current forefront position as a low-frequency radio telescope.

9. There is no reason why astronomical journals are still printed on paper.

10. Politicians have to understand that scientists cannot be completely sure about their conclusions. Scientists have to understand that politicians need to communicate simple answers.

11. The journey towards a destination is as important as the destination itself.

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