Observing Filaments Between Galaxy Clusters with NenuFAR
How to Probe Cosmic Magnetic Fields

NenuFAR workshop presentation
Etienne Bonnassieux, postdoctoral research fellow at UniBo

Collaboration with A. Bonafede, F. Vazza, C. Ferrari, F. de Gasperin, C. Tasse, ...
Outline

- Science Goals

- Why NenuFAR?

- Why us?
Galaxy filaments & Cosmic Magnetism
Galaxy filaments & Cosmic Magnetism

To study cosmic magnetism:

- Magnetic field in clusters dominated by ICM evolution
- To understand primordial magnetic field, need to go outside clusters

BUT

- If there are no relativistic electrons to decay in a forest, what can astronomers know about its magnetic field?…
Galaxy filaments & Cosmic Magnetism

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Filaments: best environment for both presence of emitting particles and unmarred cosmic magnetic field
Galaxy filaments & Cosmic Magnetism
Galaxy filaments & Cosmic Magnetism
Galaxy filaments & NenuFAR
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Observational constraints for filament observations:

- Physics of cosmic magnetism traced by large-scale, diffuse structures
- Emission mechanism of said structures more effective at lower frequencies
- Presence of foreground/embedded point sources imposes angular resolution constraints to improve confusion limits
Galaxy filaments & NenuFAR

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\[ \rightarrow \text{NenuFAR standalone in imager mode + supersynthesis} \]
Galaxy filaments & NenuFAR
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The Team

KP currently has the following participants:

Etienne Bonnassieux, Annalisa Bonafede, Franco Vazza, Chiara Ferrari, Francesco de Gasparin, Cyril Tasse, ...
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And maybe...you? ;)}