

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

NenuFAR workshop presentation

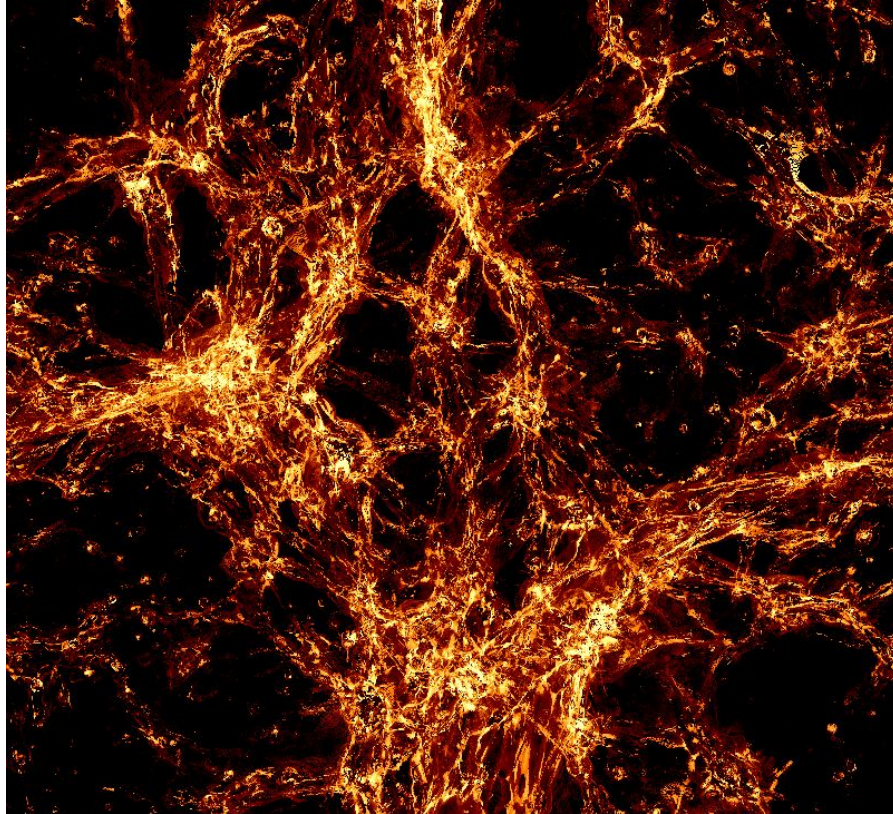
Etienne Bonnassieux, postdoctoral research fellow at UniBo

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?...

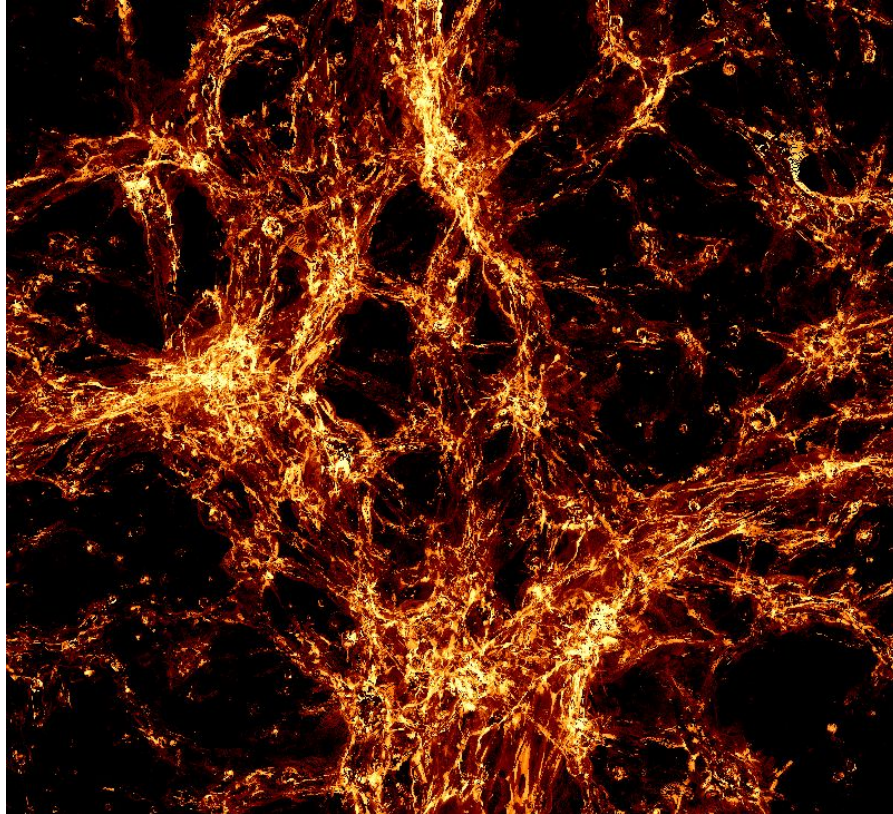
Galaxy filaments & Cosmic Magnetism

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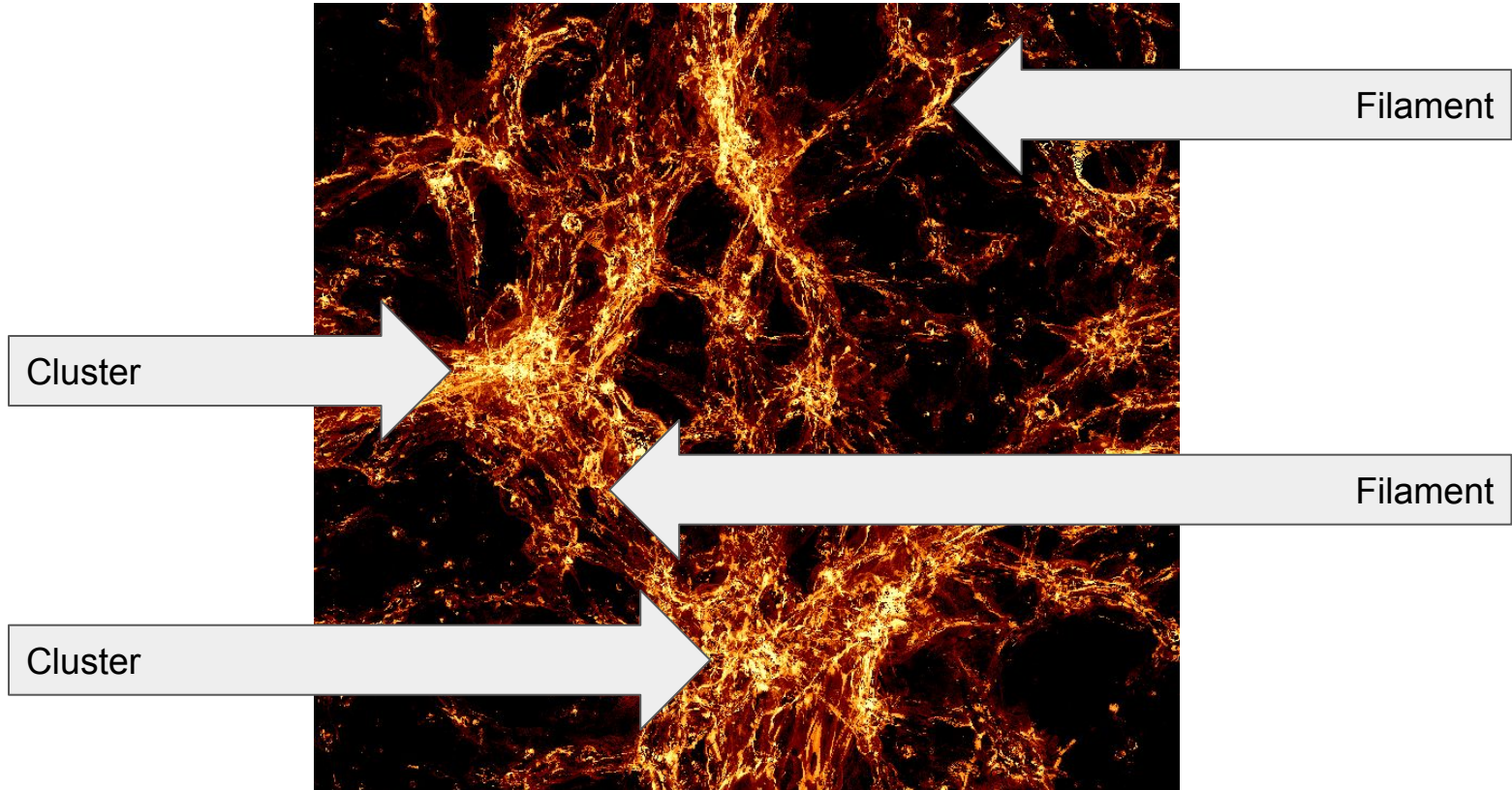
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Filaments: best environment for both presence of emitting particles and unmarred cosmic magnetic field

Galaxy filaments & Cosmic Magnetism



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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

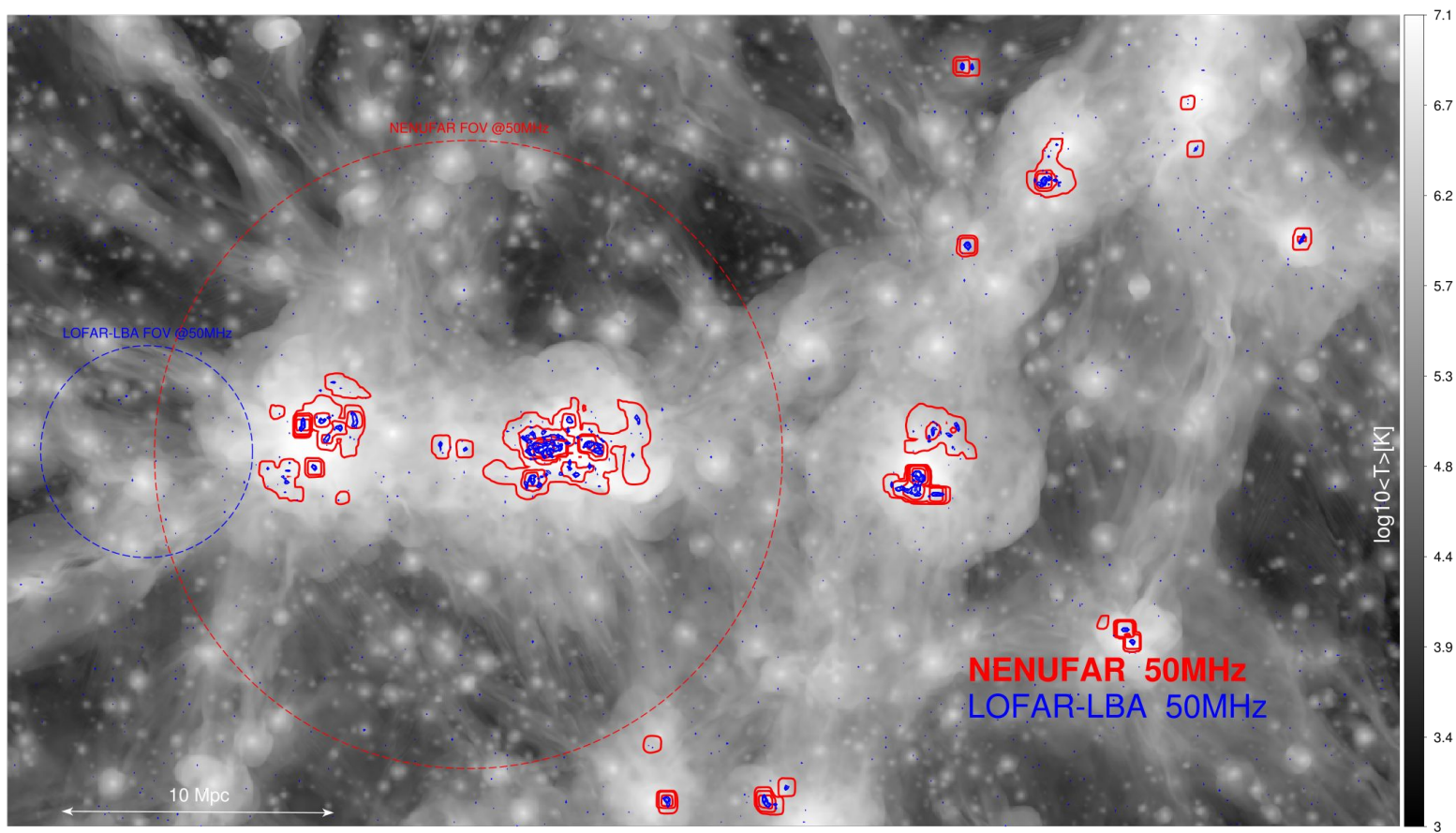
Galaxy filaments & NenuFAR

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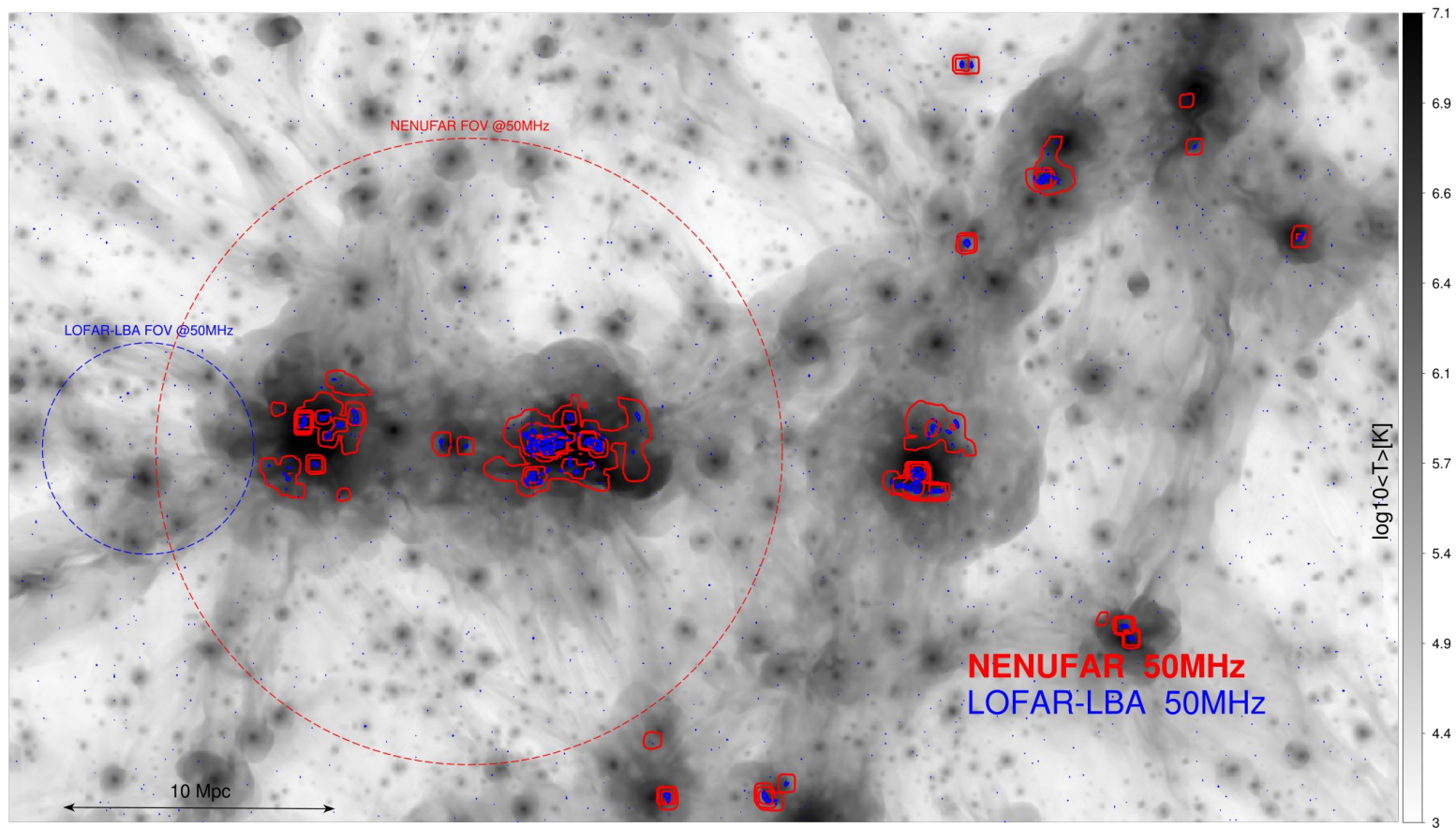
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➡ NenuFAR standalone in imager mode + supersynthesis

Galaxy filaments & NenuFAR



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The Team

KP currently has the following participants:

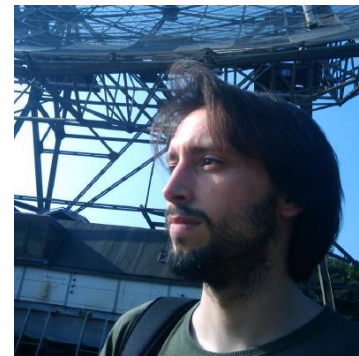
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And maybe...you? ;)