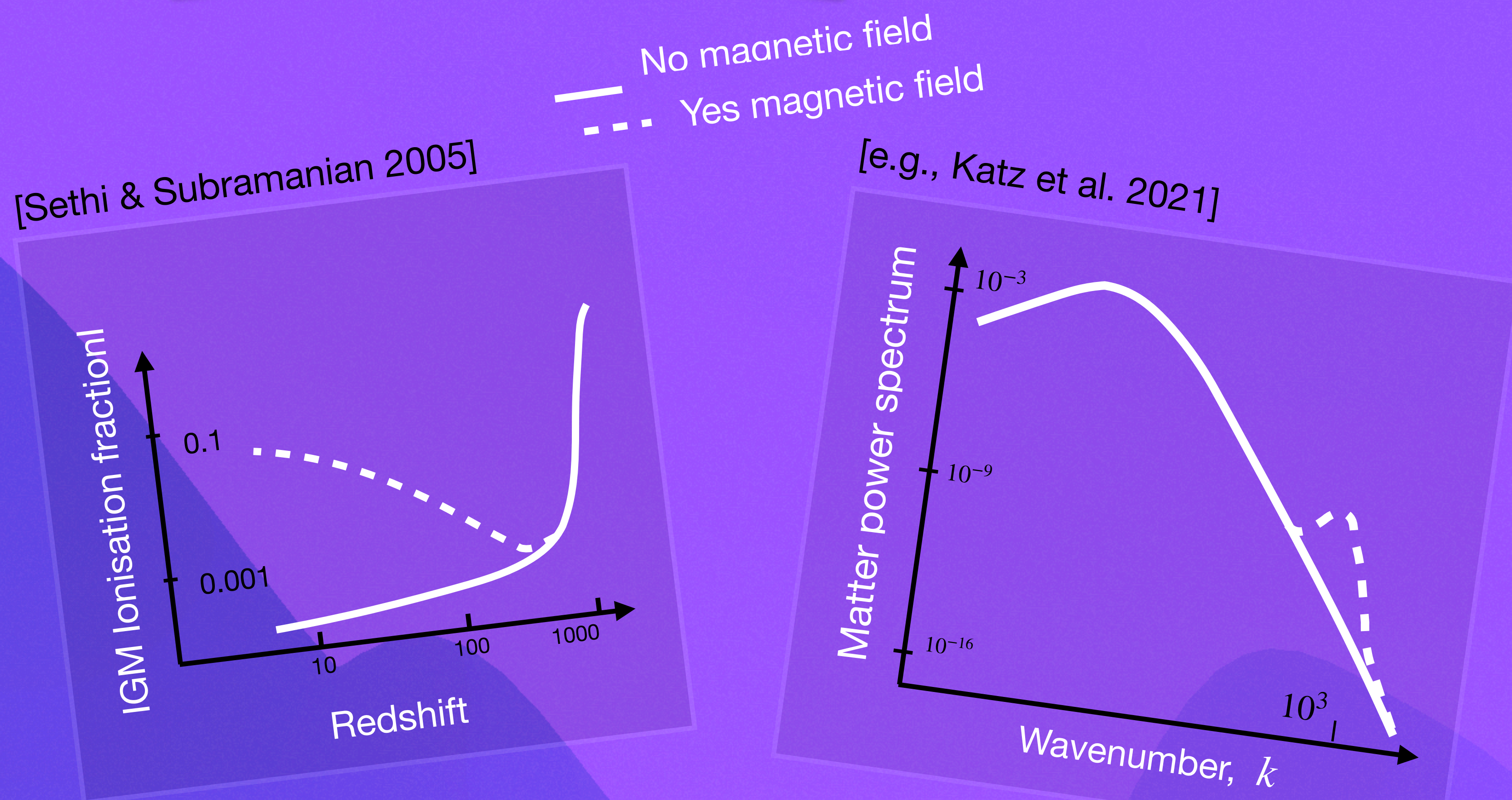


Happy that you are interested in my poster!

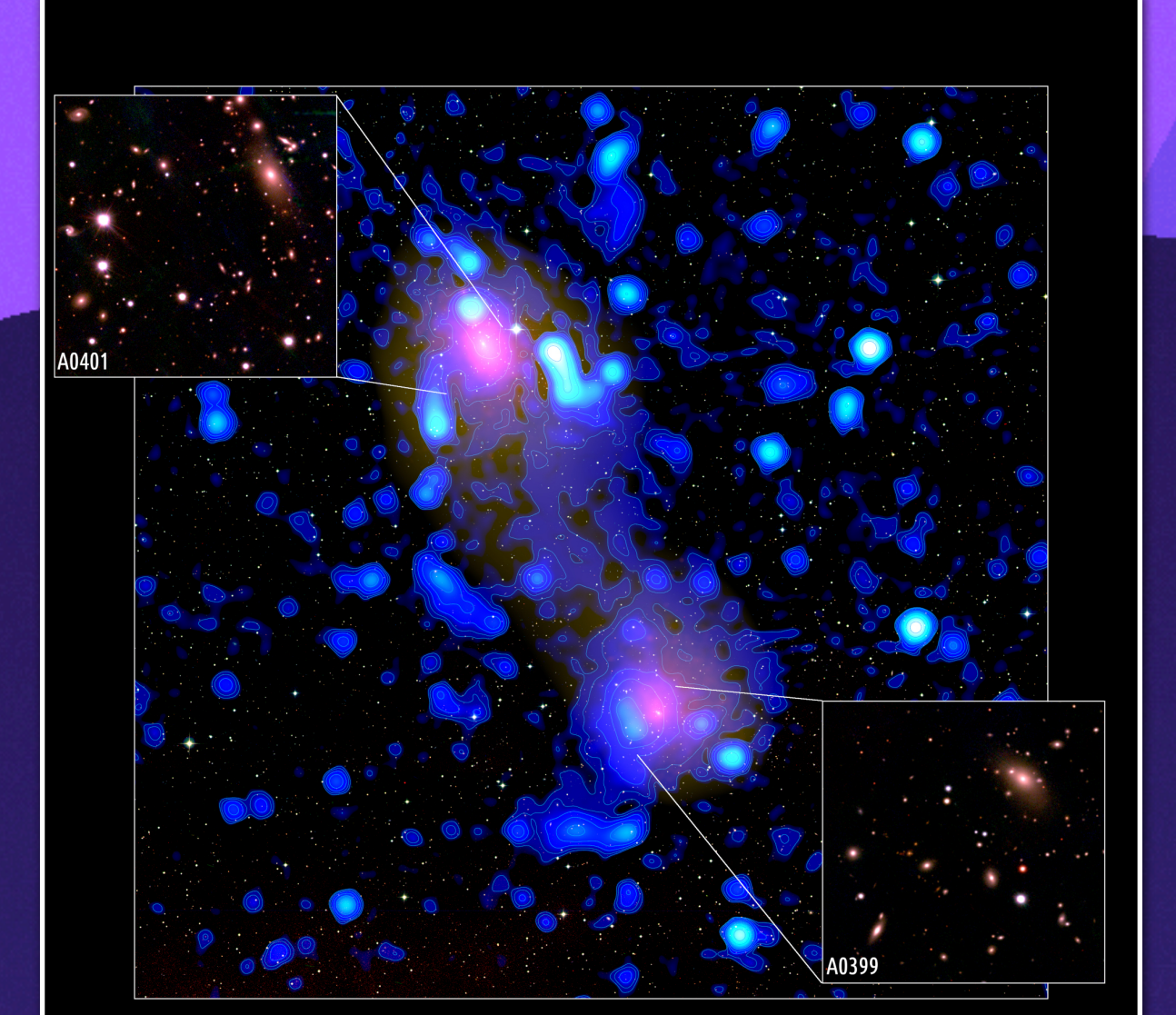
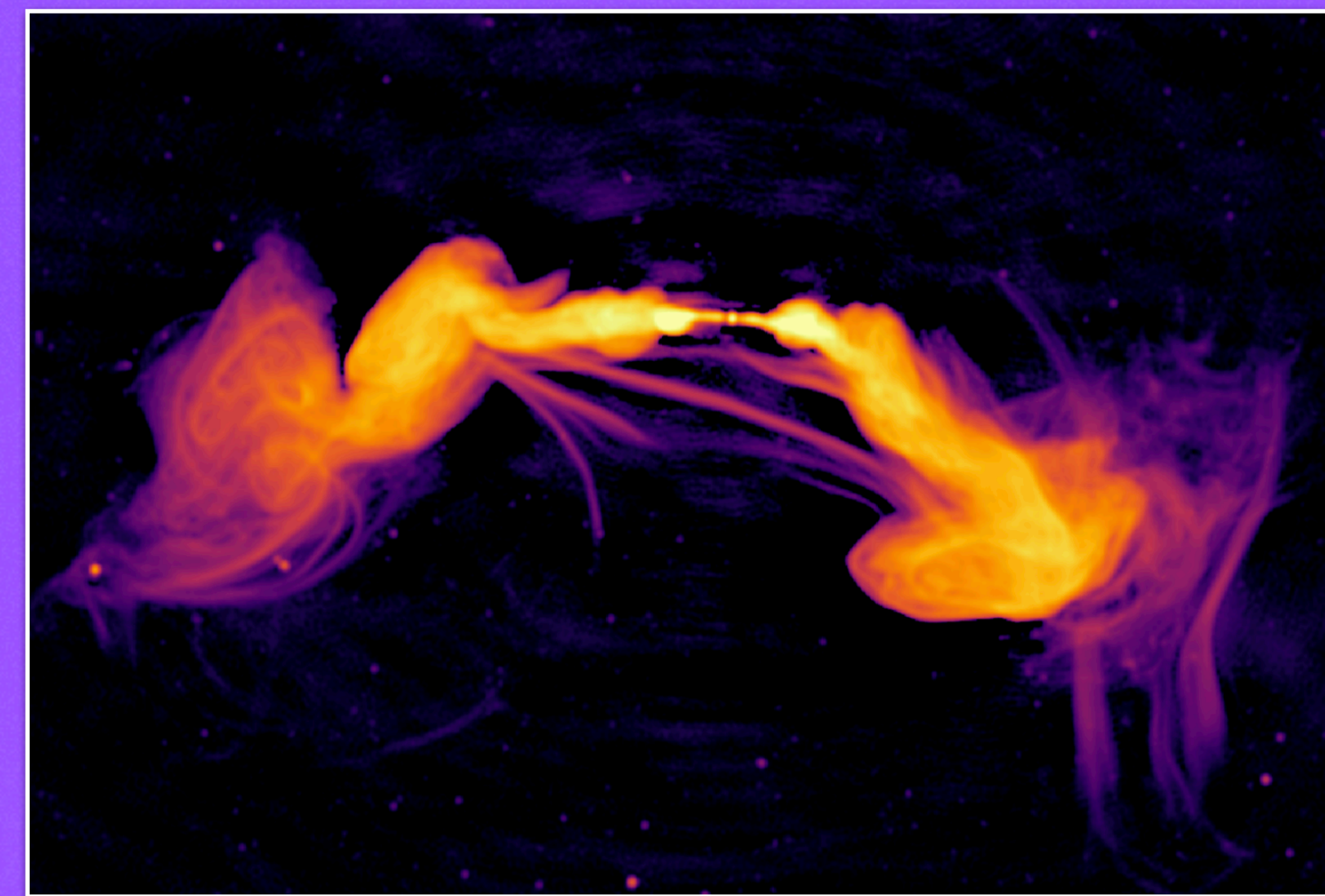
I am a postdoctoral researcher at the University of Bologna

Origin of Cosmic Magnetism: One of the Mysteries of Our Universe

Salome Mtchedlidze, "Beyond the Edge of the Universe", Sintra 2024
salome.mtchedlidze@unibo.it



Left - radio galaxy, right: merging galaxy cluster system (pink: x-ray, blue-radio. Cr: Rhodes University/INAF/SARAO, Govoni et al. 2019)



Radio emission — revealing magnetic fields on galaxy and galaxy cluster scales

Are magnetic fields and their origin interesting to study?

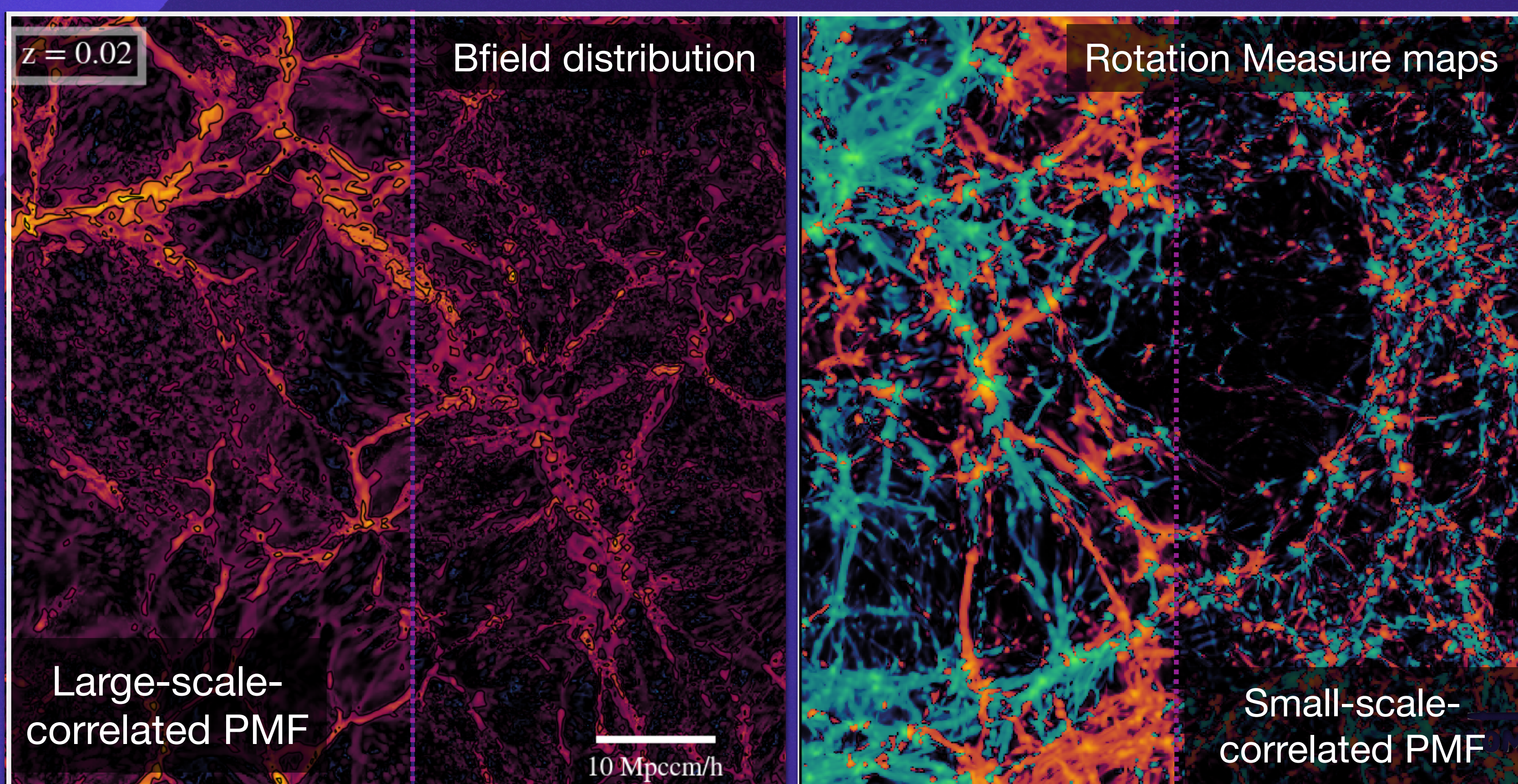
..previous

Cosmological simulations

current..

in progress

Evolution of magnetic fields (primordial scenarios — generation of weak magnetic fields in the early Universe)

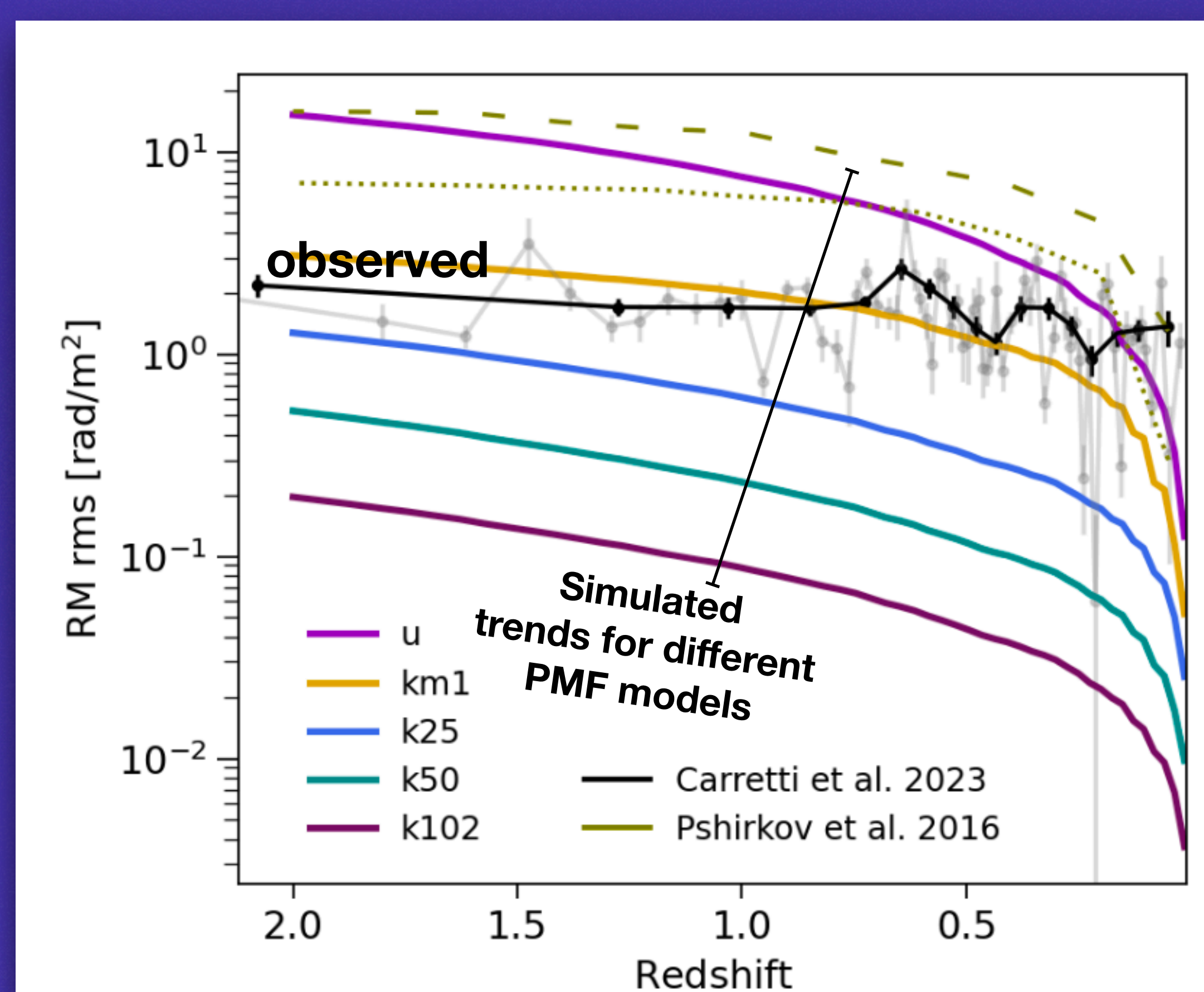


Mtchedlidze et al. 2022

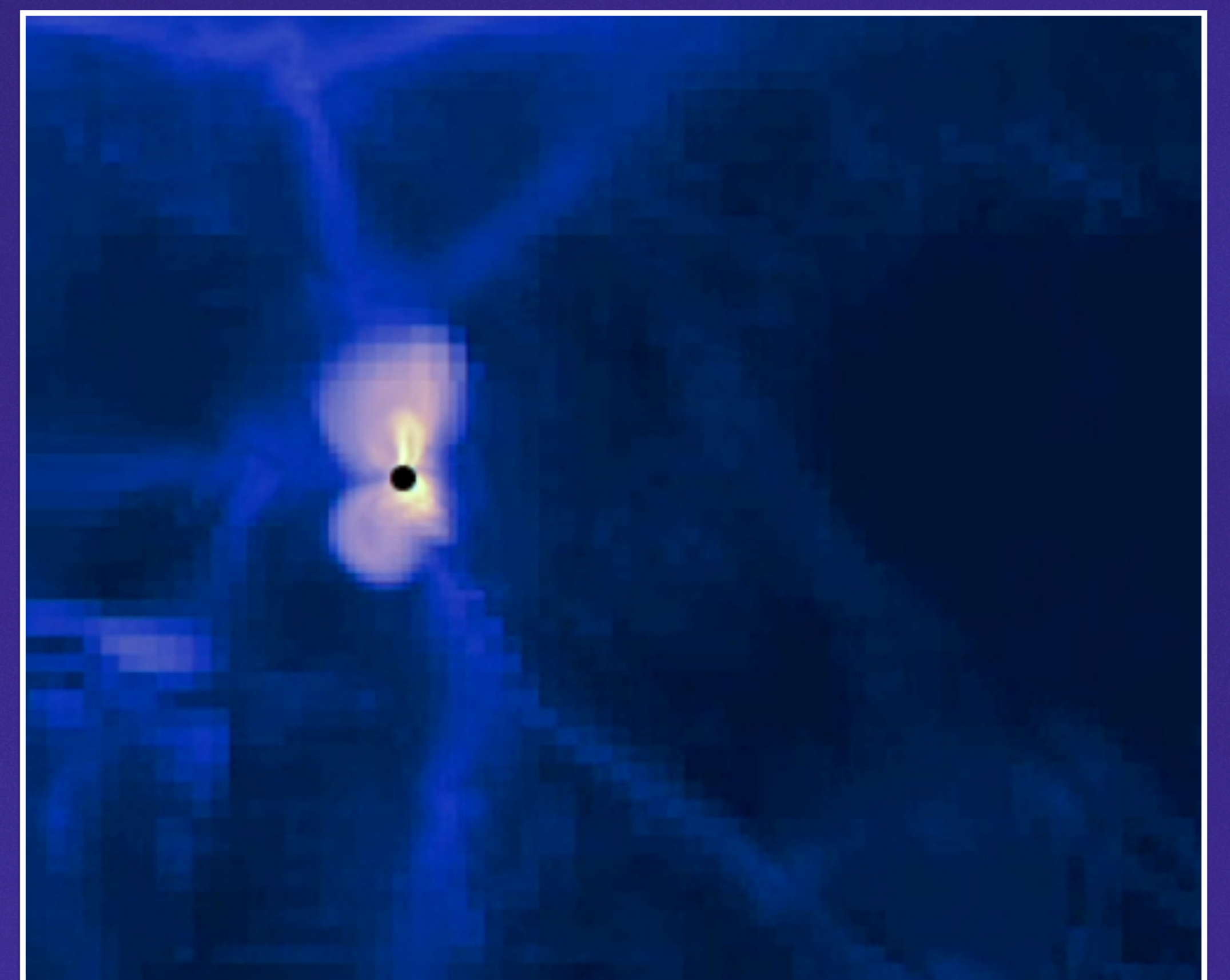
We studied the evolution of primordial magnetic fields (PMFs) using cosmological simulations ...

... and their signatures on the Faraday Rotation Measure (ask me about this!)

Mtchedlidze et al. 2024 submitted



We strive to simulate realistic magnetised jets in cosmological simulations



- What should be the structure of magnetic fields within jets — toroidal or helical (e.g., Bodo et al. 2013, Gabuzda et al. 2015, 2018)?

- Can such astrophysical magnetisation (magnetised jets) of the IGM be solely responsible for e.g., observed Rotation Measure trends?

- If we know the origin (primordial vs astrophysical) of large-scale magnetic fields how then they affect reionisation and structure formation processes?