Galaxy Pairs: AGN

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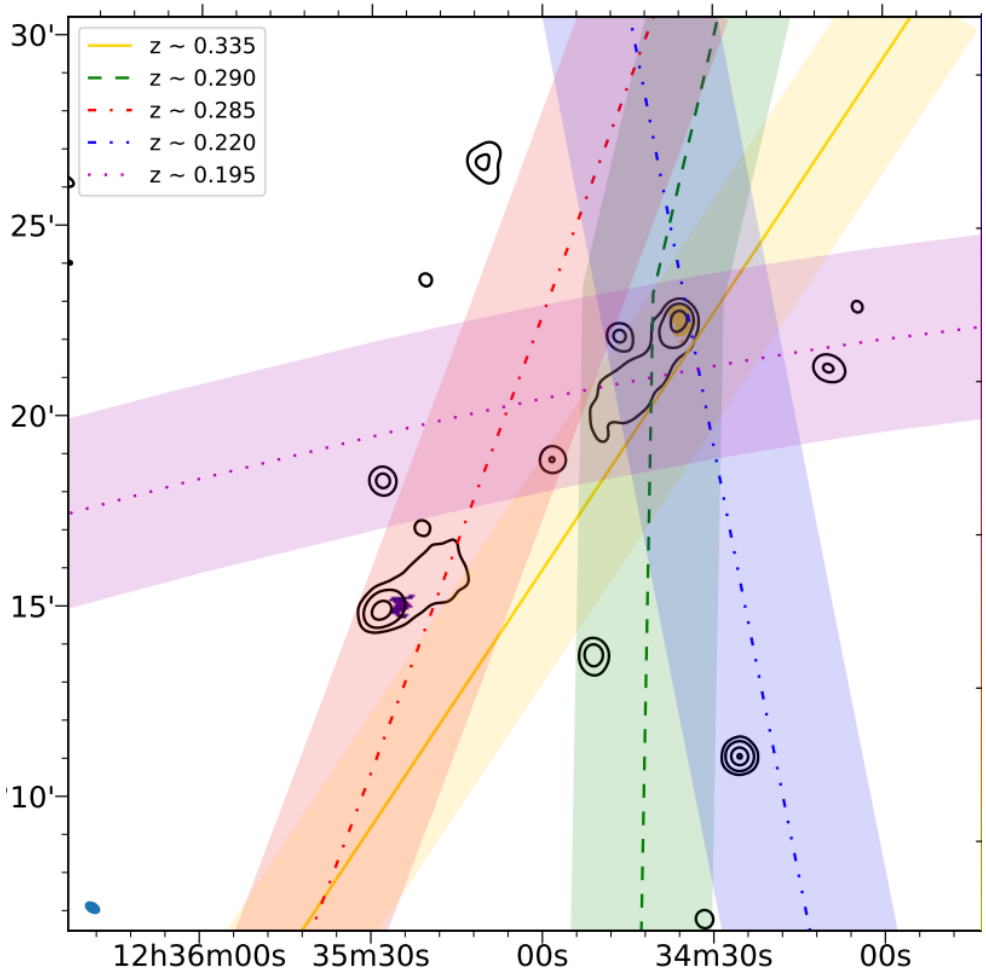
› Double-lobed radio galaxies provide parallel adjacent RM sightlines through IGM
  - but can't rule out Milky Way foreground fluctuations (O'Sullivan et al. 2019)



O'Sullivan et al. (2019)

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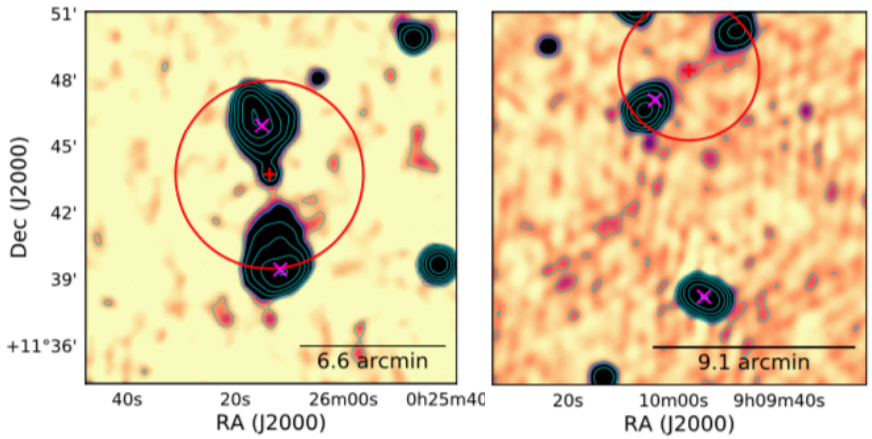
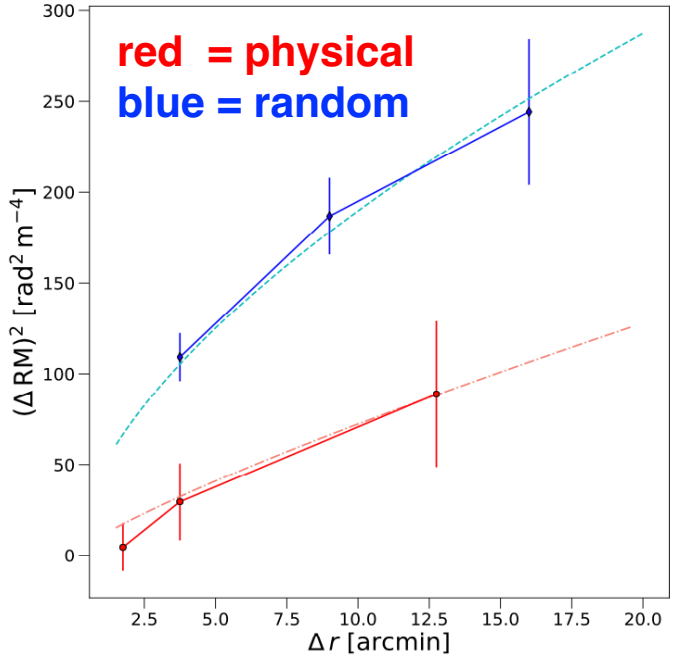
- Double-lobed radio galaxies provide parallel adjacent RM sightlines through IGM
  - but can't rule out Milky Way foreground fluctuations (O'Sullivan et al. 2019)
- Separate into physical vs random polarised pairs (Vernstrom, Gaensler et al. 2019)
  - 317 physical pairs, 5111 random pairs: eliminates foreground effects
  - Physical pairs: $\Delta RM = 4.6 \pm 1.1$ rad m^{-2} ; random pairs: $\Delta RM = 14.9 \pm 0.4$ rad m^{-2}
  - difference due to extra IGM for random pairs? implies $B_{IGM} \sim 40$ nG
- Develop "pairs" pipeline for POSSUM Pilot Survey
  - better RMs, closer spacings, many more sources
  - feasibility study for full POSSUM survey



Vernstrom, Gaensler et al. (2019)



Vernstrom, Gaensler et al. (2019)

Galaxy Pairs: Star-Forming Galaxies

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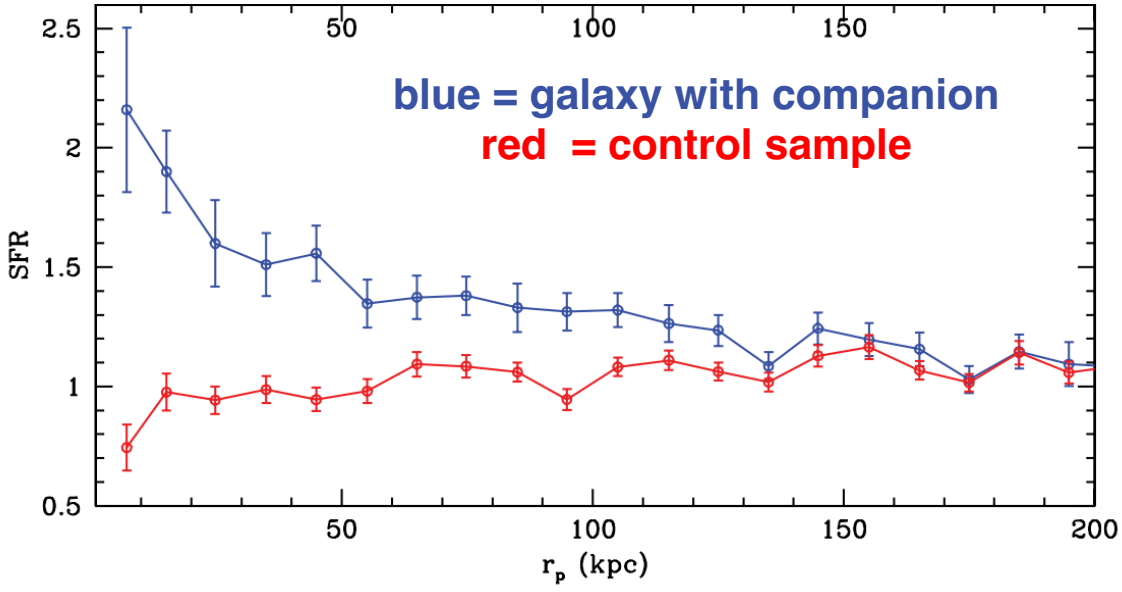
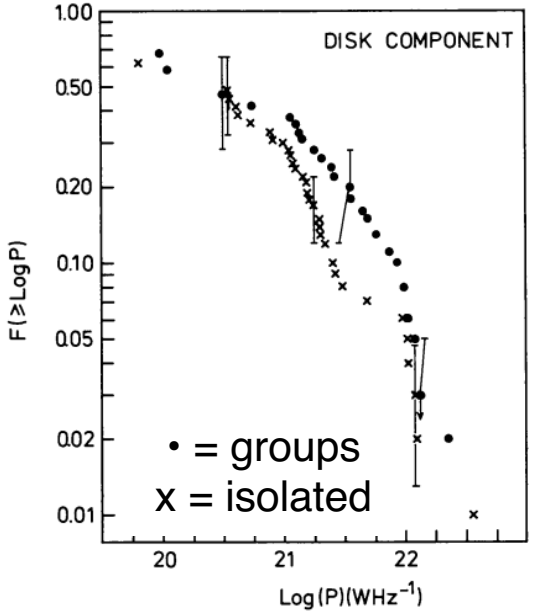
- Proximity of other galaxies enhances star-formation rate (e.g., Patton et al. 2013)
- But what about synchrotron emission & coherent/turbulent magnetic fields?
  - possible enhanced radio emission, but limited samples (Stocke 1978; Hummel 1980, 1981; Menon 1995)
  - no polarisation studies? does proximity affect radio / far-infrared correlation?
- Use EMU/POSSUM pilots for feasibility study and to develop pipeline
  - full study may need GAMA Groups catalogue (Robotham et al. 2011)



Patton et al. (2013)



Hummel (1981)