

The Dark Matter Distribution of the Merging Galaxy Cluster PLCKG287.0+32.9

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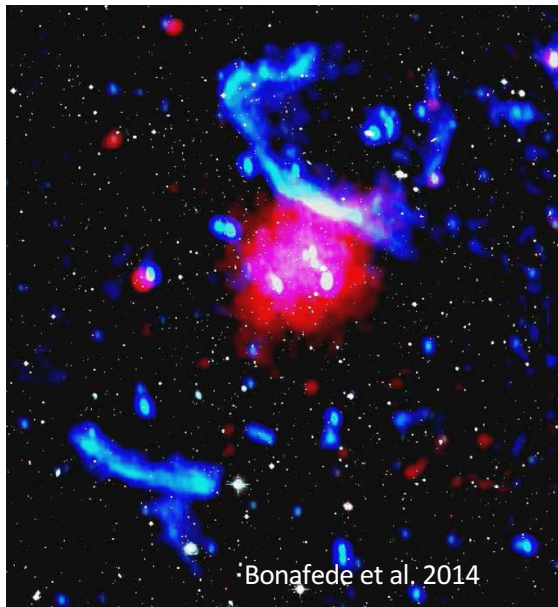
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Previous Studies

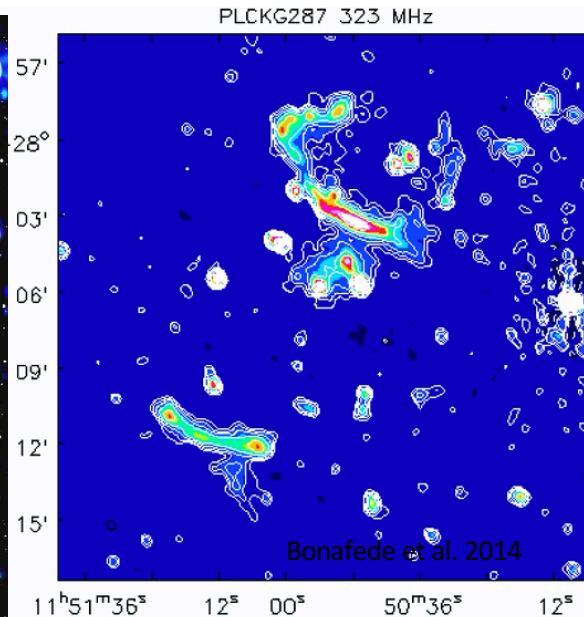
- Planck SZ survey 2nd most significant detection
- XMM-Newton X-ray:
 - $T=12.86$ keV
 - $M=1.57 \times 10^{15} M_{\odot}$
- GMRT radio (150, 323, 610 MHz)

Evidence of merging system

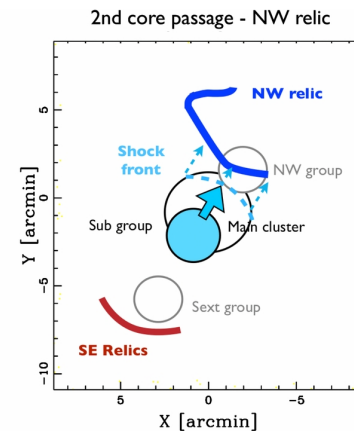
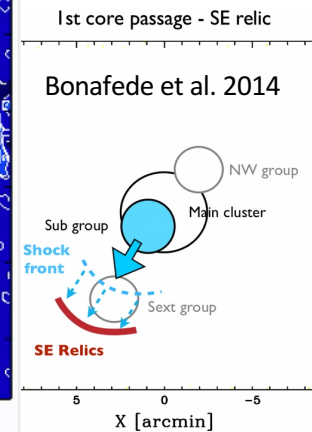
- Disturbed X-ray morphology
- Radio halo
- Two radio relics (shock waves)



*XMM X-ray emissions in red.
 GMRT radio emissions in blue.*



S/N of 323Mhz band. Contours begin at 3σ.

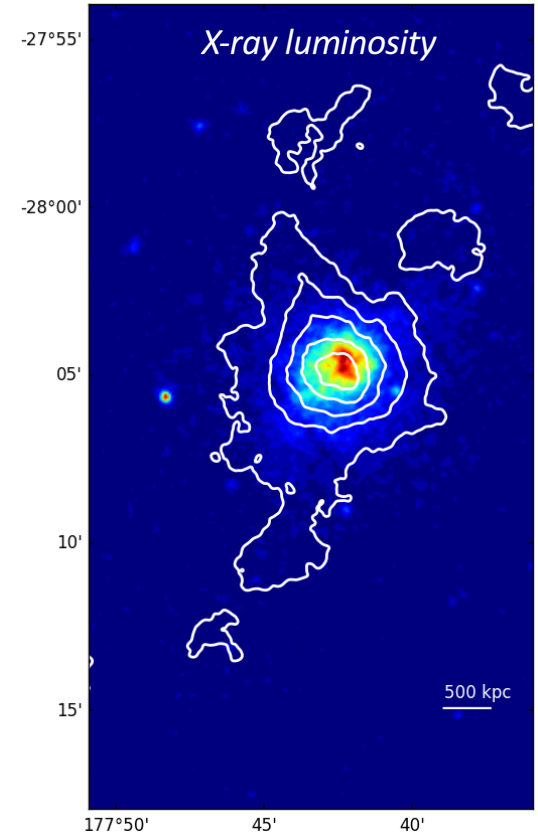
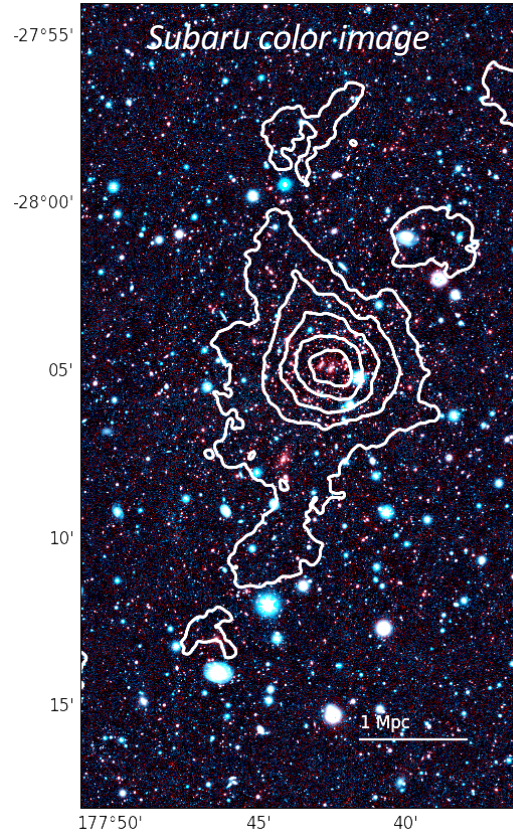
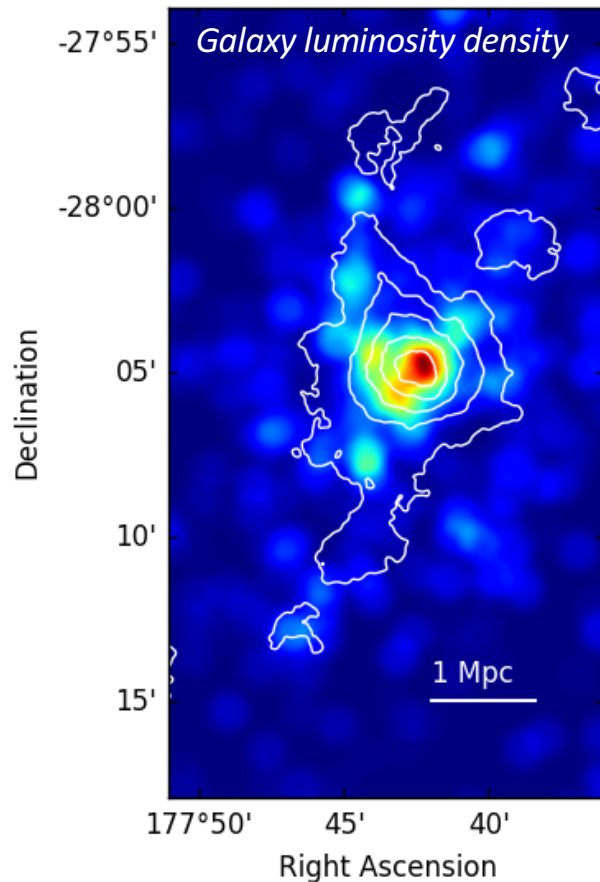


Merging scenario suggested by Bonafede

Weak-lensing Analysis

WL Method

- Select background galaxies.
- Measure galaxy ellipticities.
- Averaged galaxy ellipticity is reduced shear.
- Determine surface mass density from reduced shear.



WL Analysis

- Single mass peak in dark matter distribution.
- Dark matter distribution agrees with galaxy luminosity distribution.
- Peak of dark matter distribution is aligned with BCG.
- X-ray peak is consistent with dark matter peak.