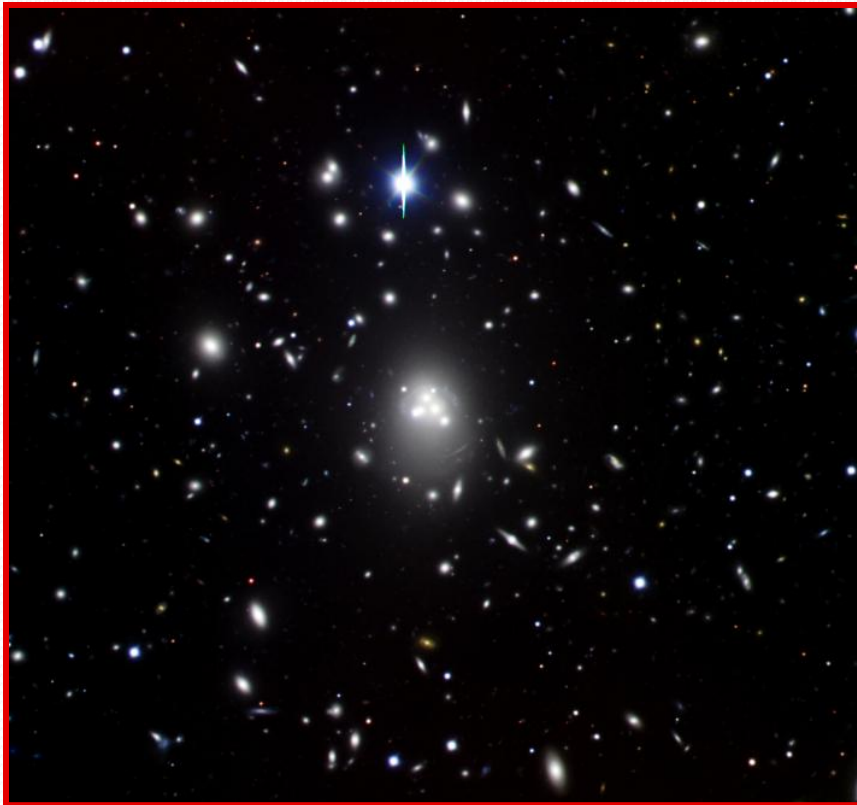


The Very Massive Central Galaxy in the Nearby Abell 3827 Cluster

Percy Gomez, J. Turner, R. Carrasco, R. Diaz, H. Lee, M. Maier
(Gemini), T. Verdugo (Valparaiso), K. Romer, L. Valkonen, K.
Sabirli, (Sussex), M. West (ESO), and M. Bergman

Optical Observations

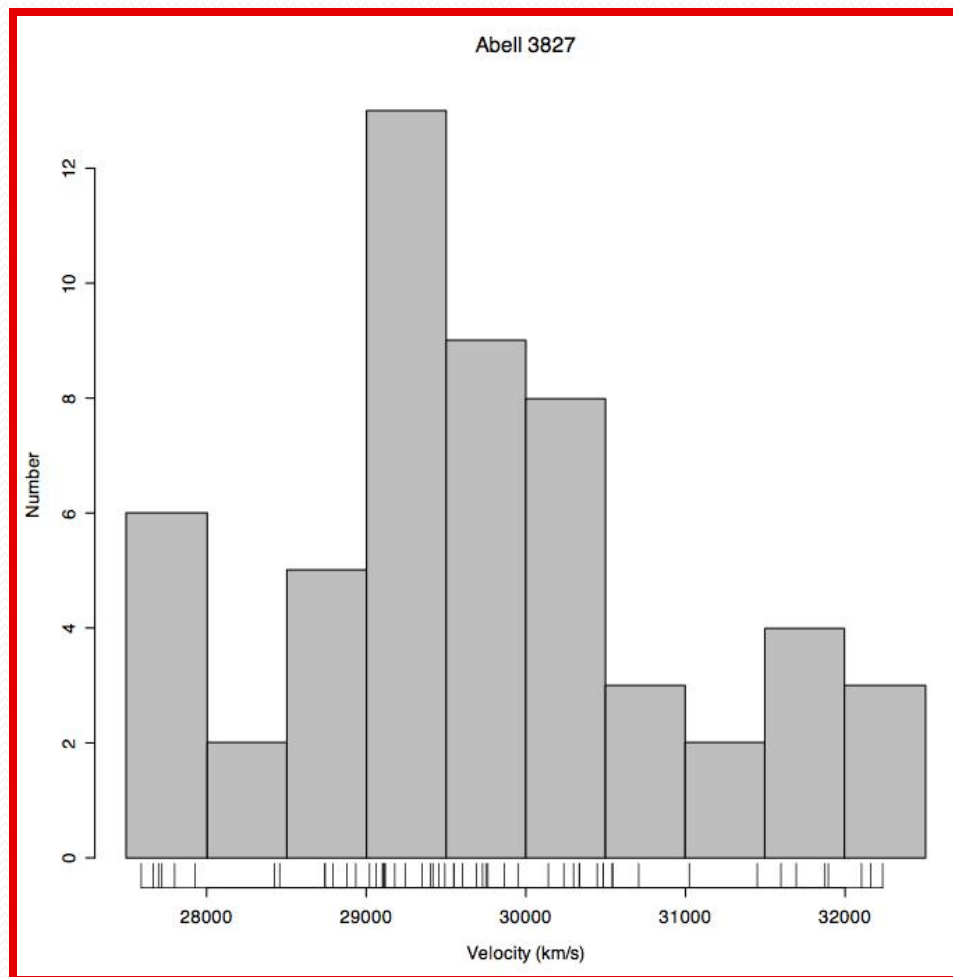
(GMOS 5x5 arcmin)



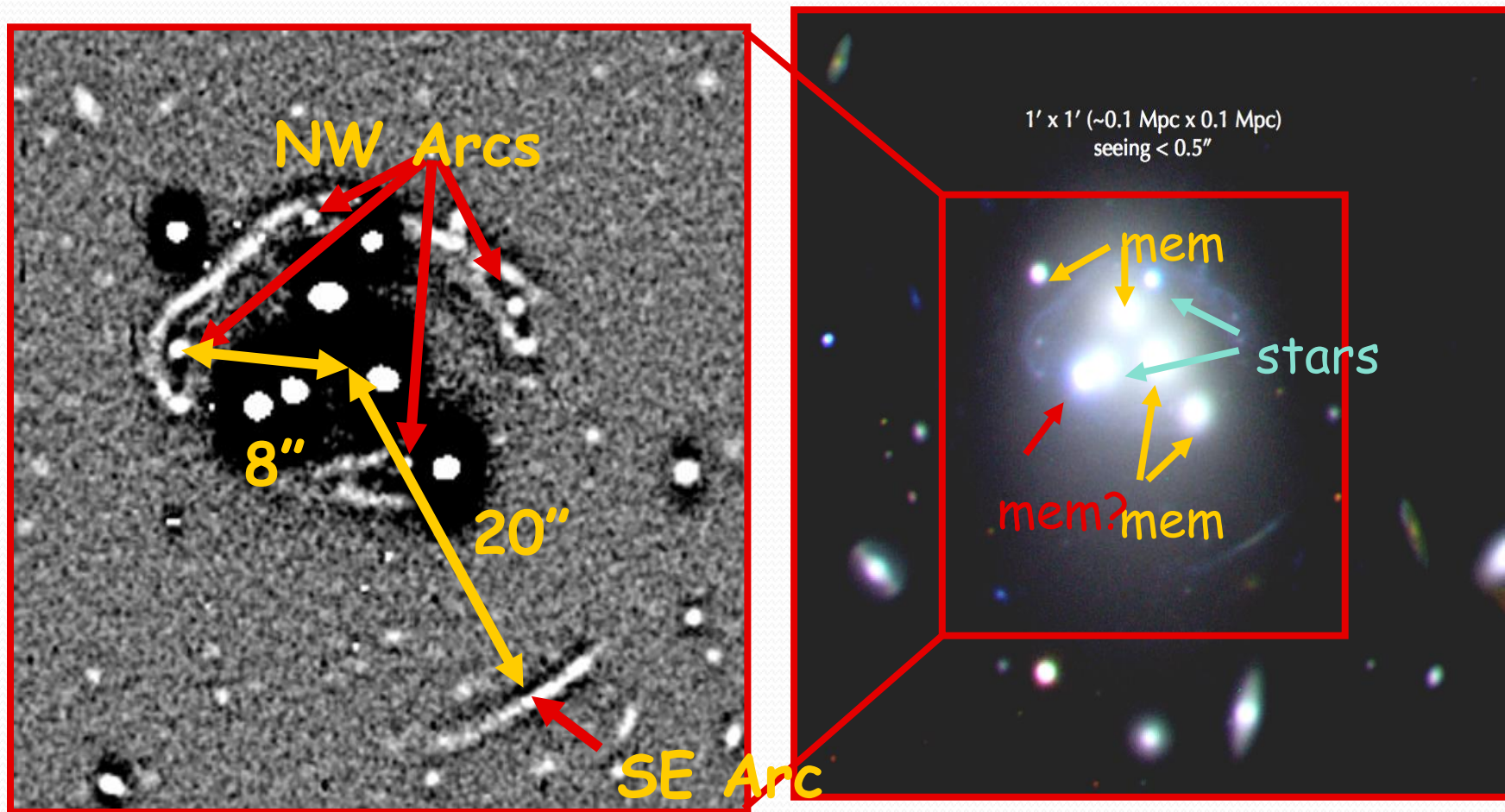
- One of the richest clusters ($z < 0.2$)
- Multinuclei central galaxy
- GMOS imaging (g' , r' , and i' bands with $0.''5$ seeing) and spectroscopy data.
- It is a BCG that at $z=0.11$ is still growing...

Velocity Distribution

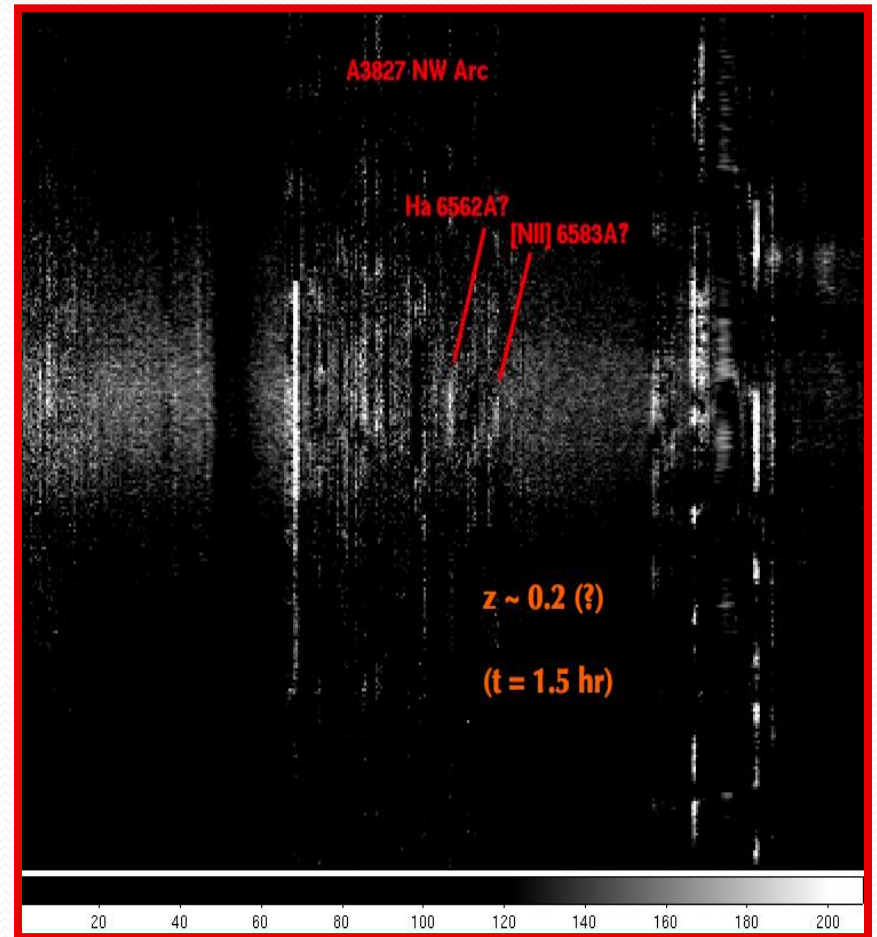
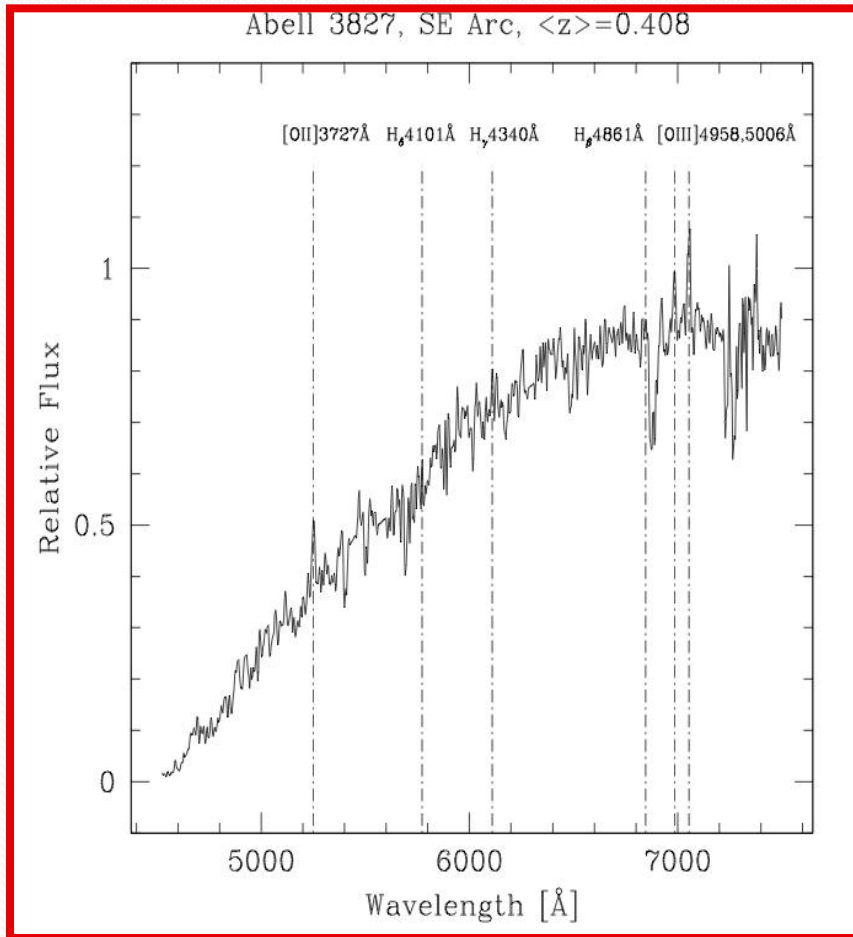
- 55 galaxy members
- Consistent with two subgroups:
 - 29500 (40)
 - 31800 (10)



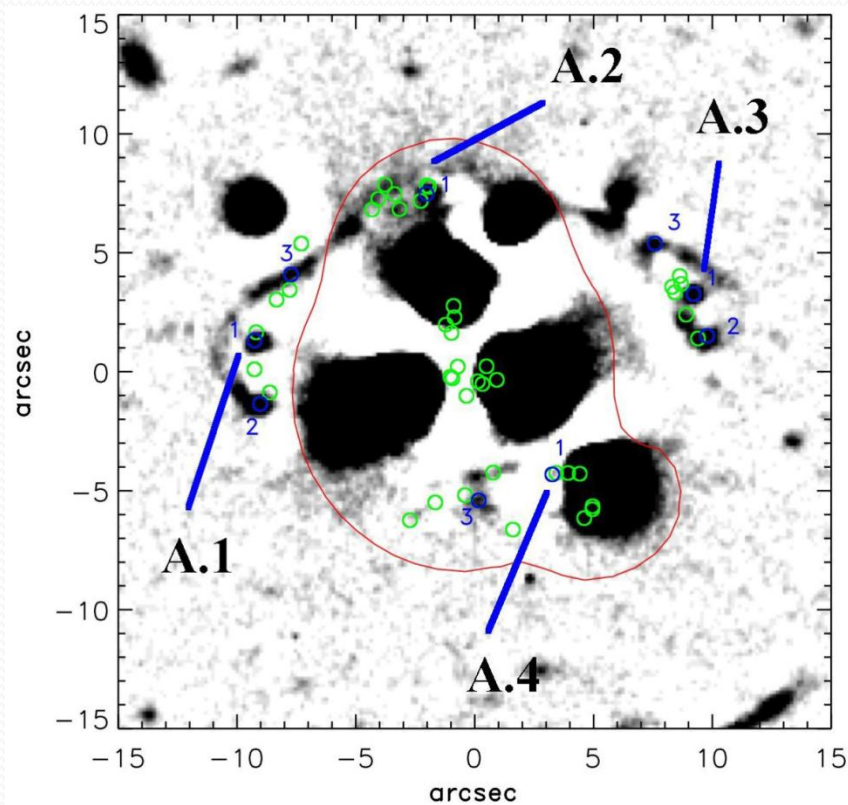
Our Analysis has also revealed ...



Lens Features



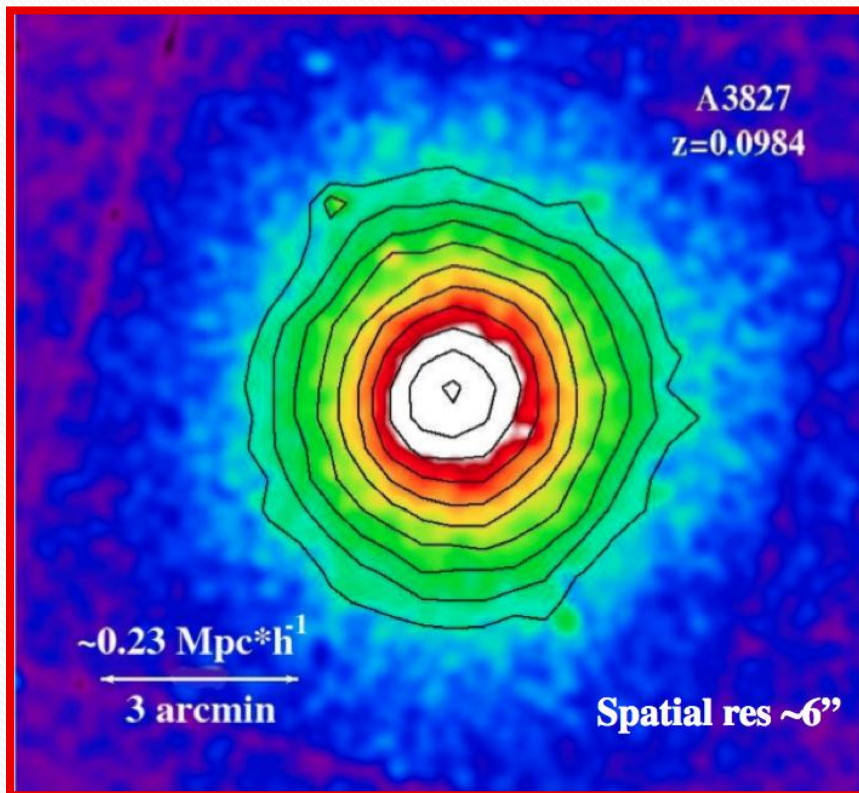
Strong Lensing Model



- Red: critical line ($z=0.2$)
- Blue: Input lensed images
- Green: Predicted features
- Mass ($< 37\text{kpc}$) = 2.7×10^{13}

X-ray Properties

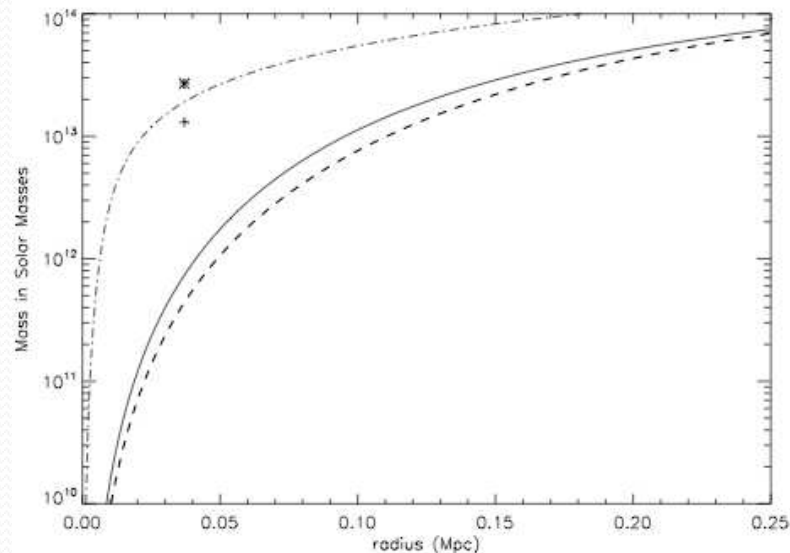
XMM DATA



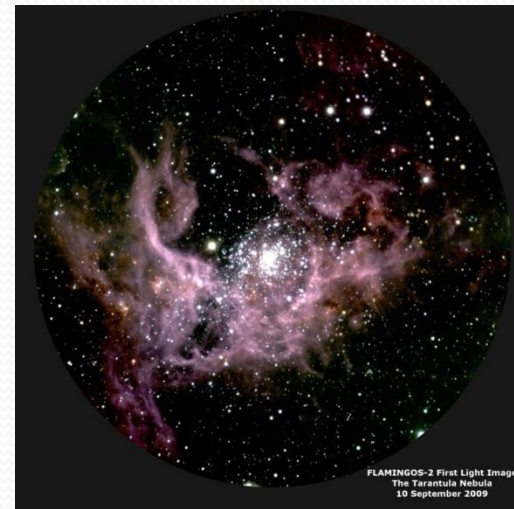
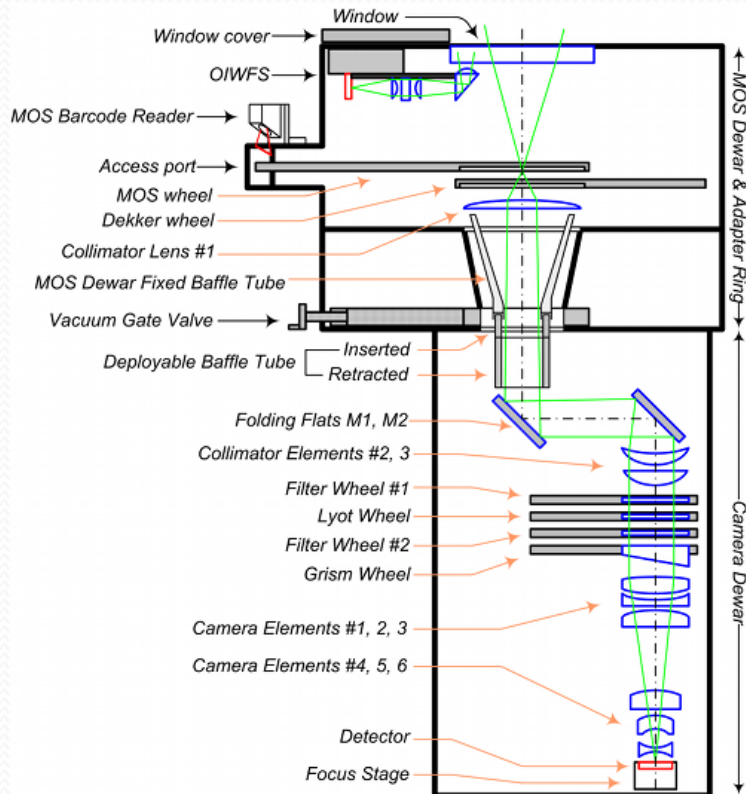
- 7 keV temperature
- $R_c=170 \text{ kpc}$, $\beta=0.54$
- No evidence for a shock
- SZ map does not reveal anything else

Conclusion

- This cluster is undergoing a merger (velocity distribution is bimodal)
- No evidence in X-ray and SZ for a merger (no shock)
- Very dense central region. Mass ($r < 37\text{kpc}$) = 2.7×10^{13}
- The merger is massive (1:1 or 1:2 mass ratio) seen along the merger axis
- The merger is close to core crossing at an epoch where gravitational potential is at maximum (for $\sim 0.5\text{Gyr}$).
- These conditions boost the lensing potential and perhaps the X-ray and SZ signal.



FLAMINGOS-2:



Up to 50 slits from J to Ks

