

Stellar Systems at $z > 4$:

Proto Globular Clusters Properties & the Imposter

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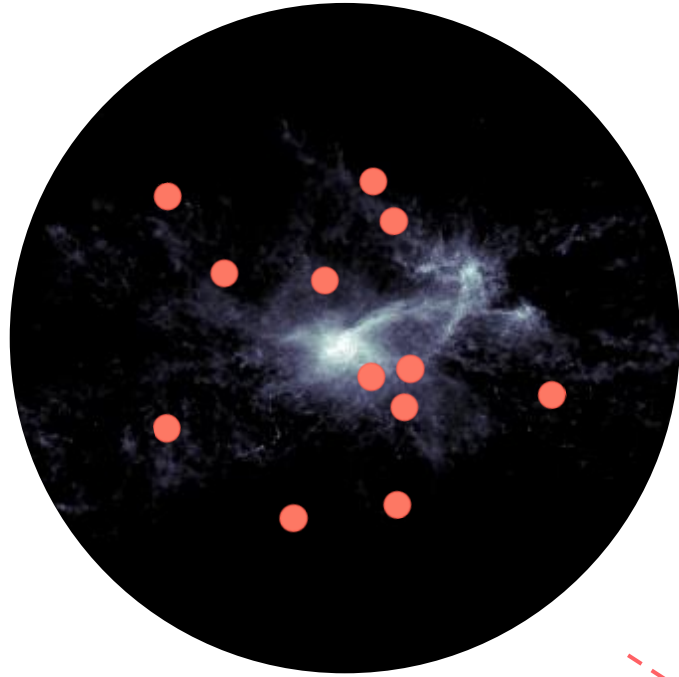
**University of
Zurich**^{UZH}



GigaERIS
High-resolution



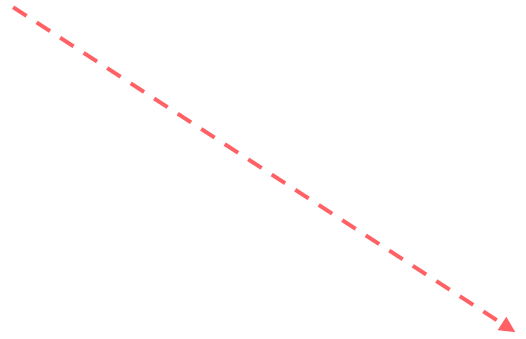
formation history of GCs at
high- z remains unsolved



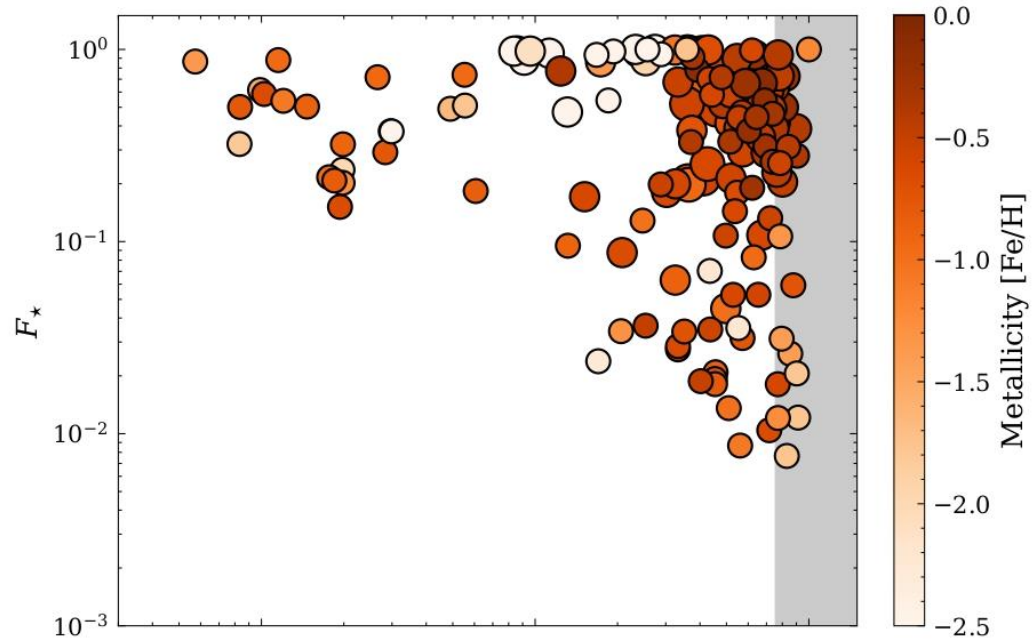
GigaERIS
High-resolution



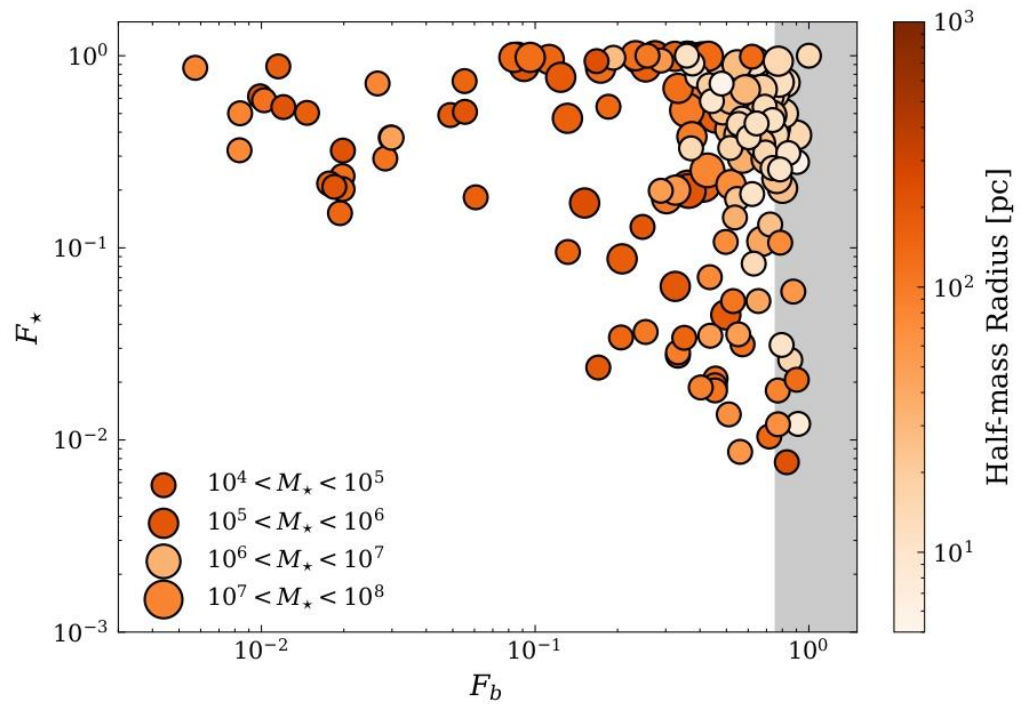
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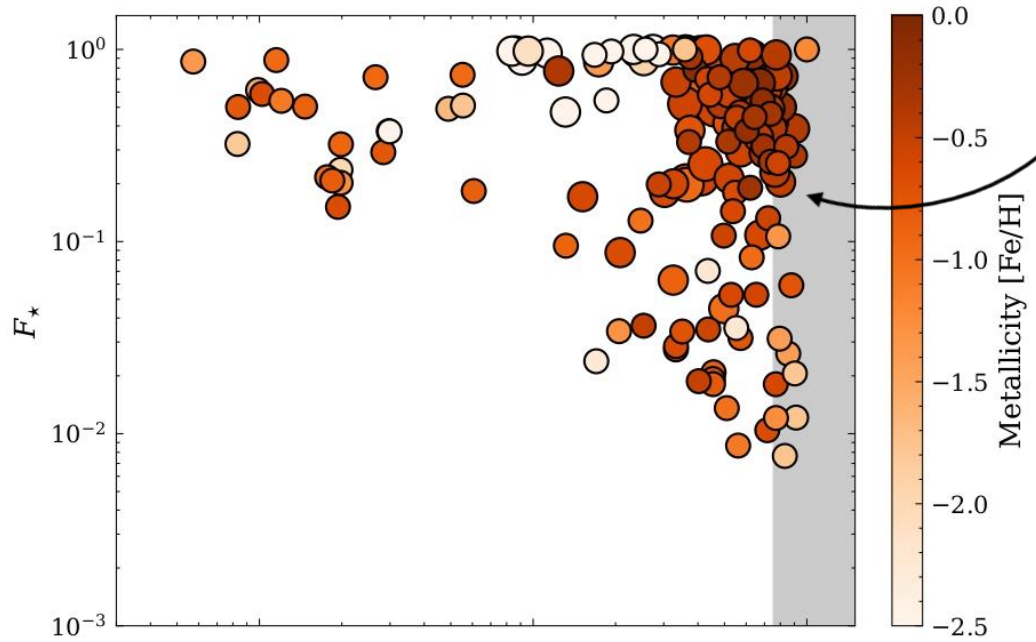


**Study properties of
proto-GCs at $z=4.4$**



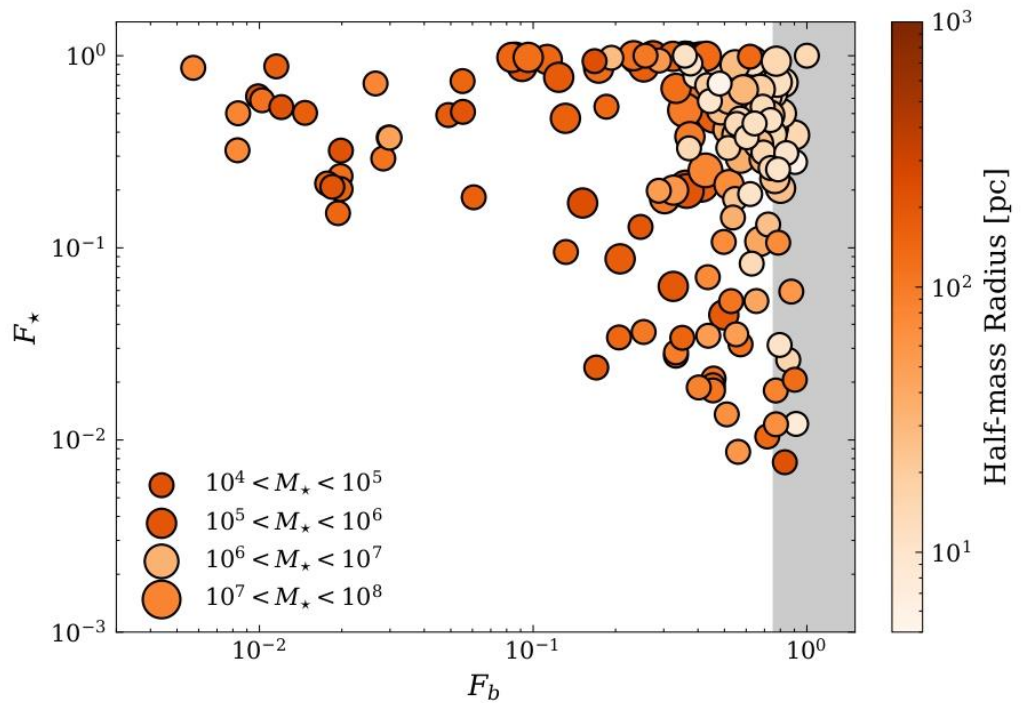
What can we classify as a proto-GC?

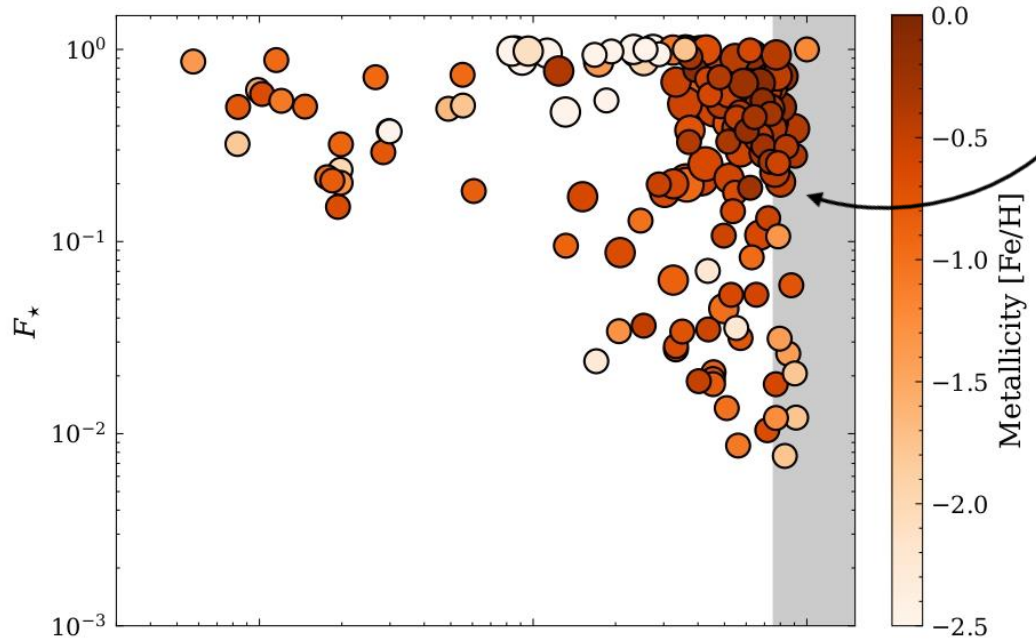




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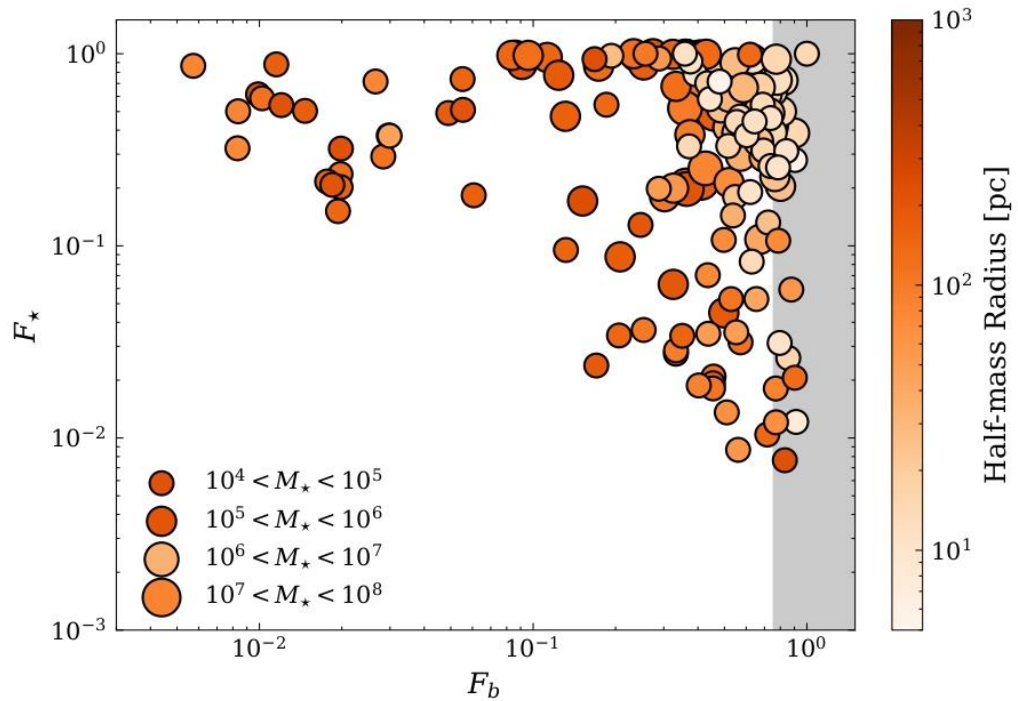
- Gravitationally bound
- Baryon dominated, $F_b \geq 0.75$



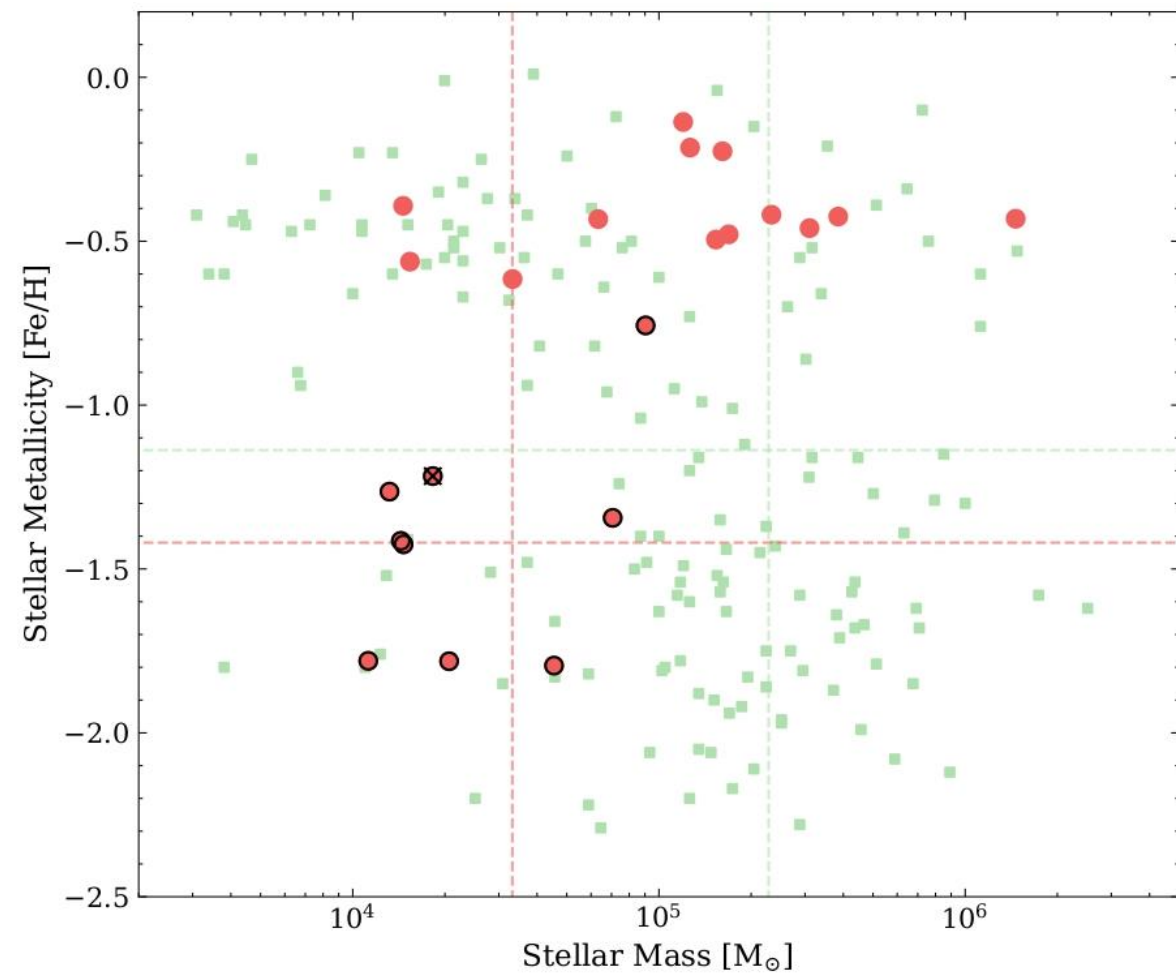
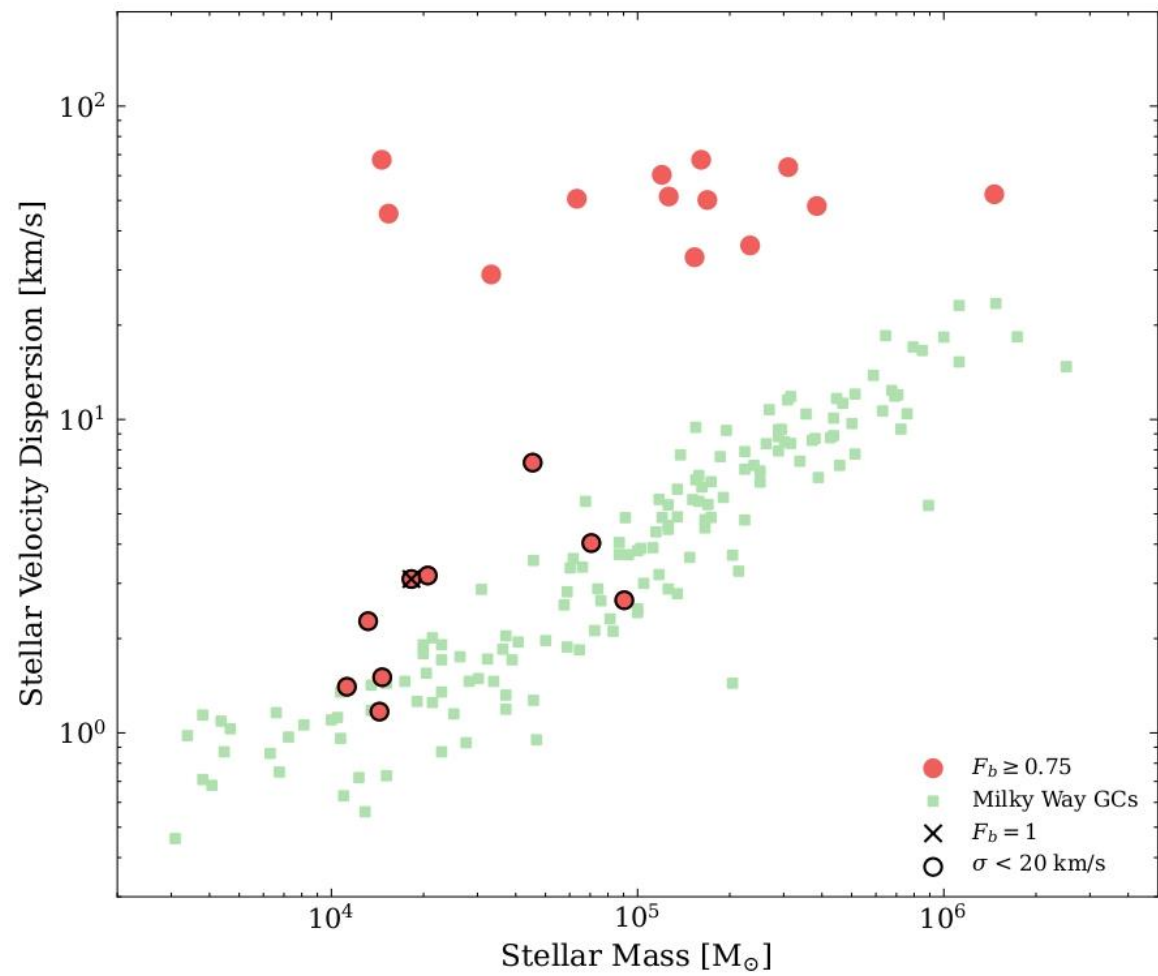


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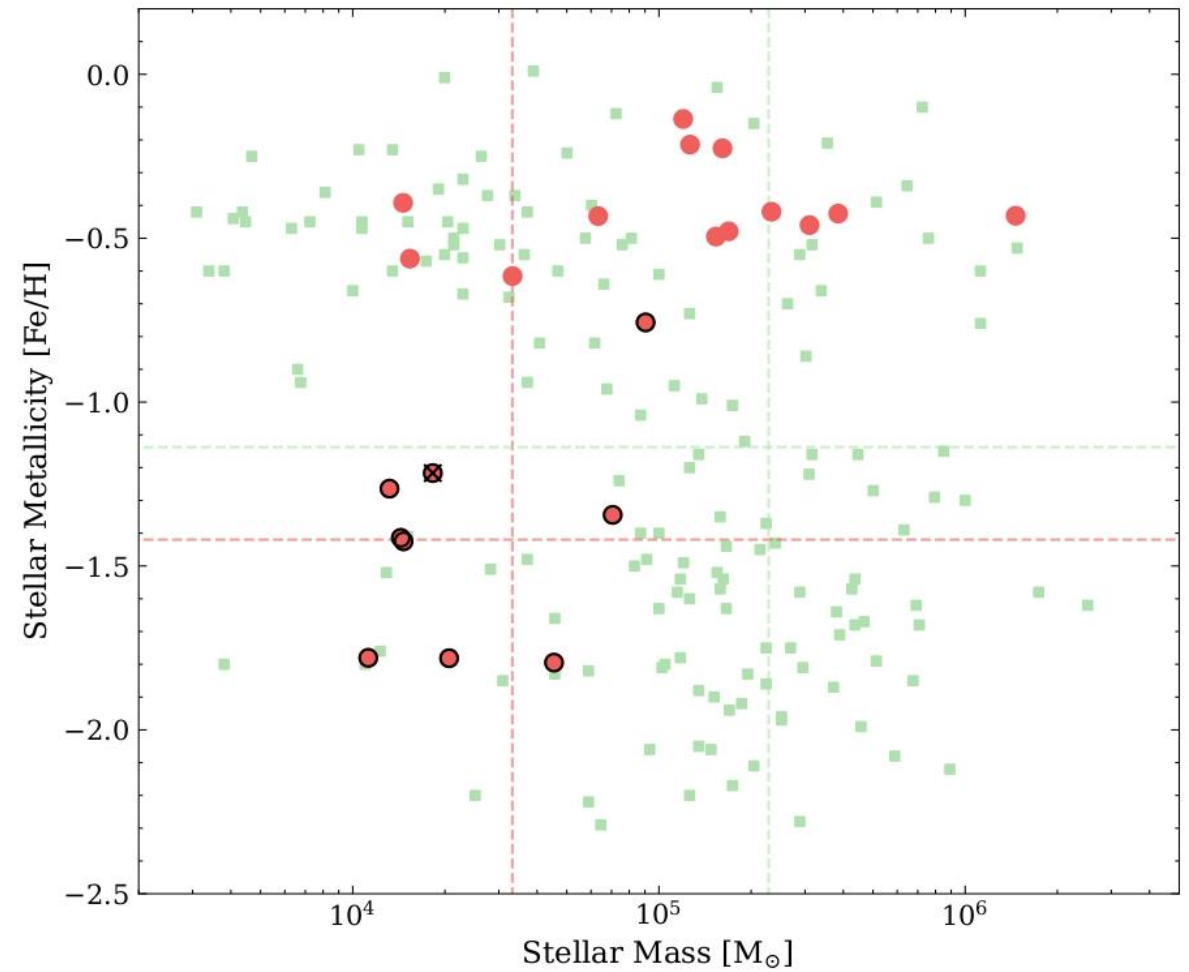
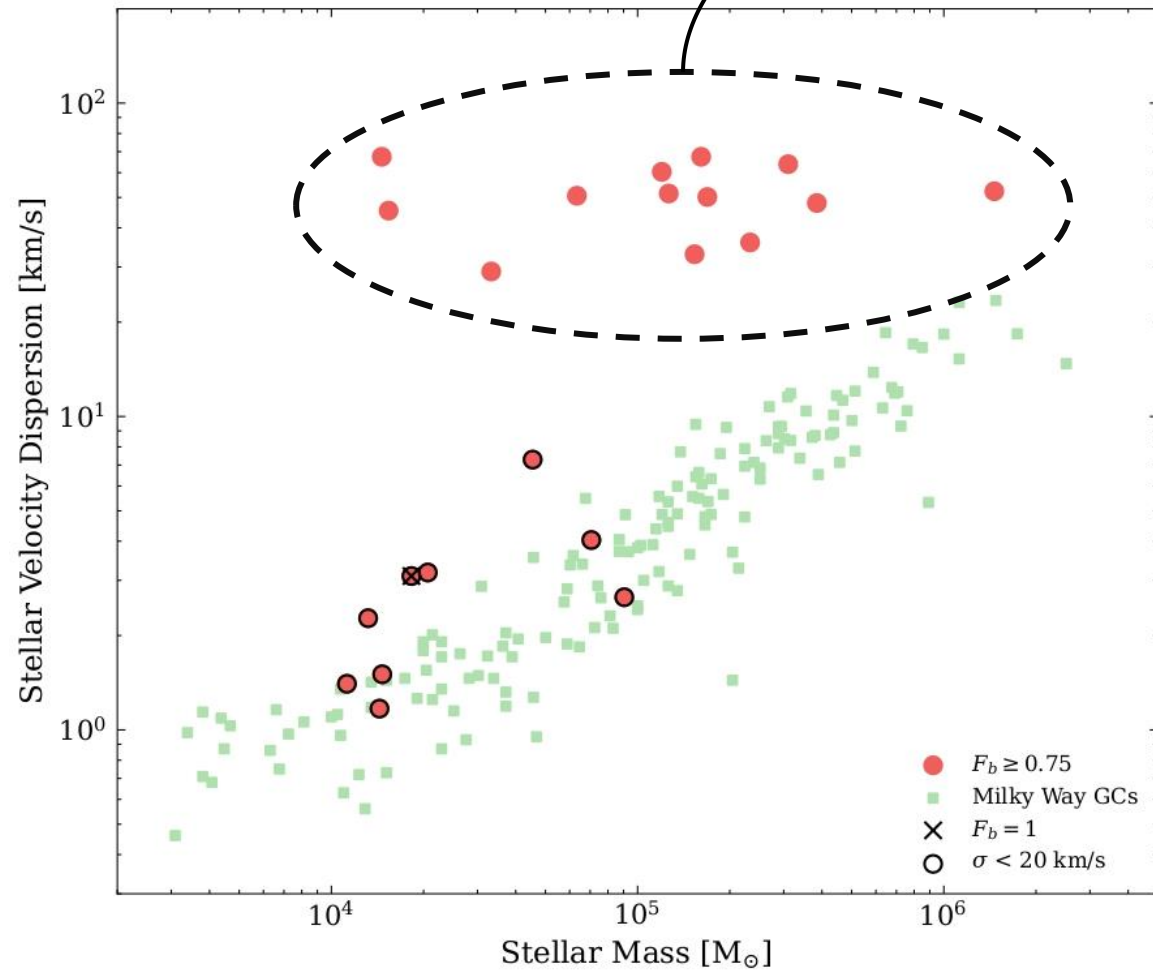
N = 22



Possible NSC predecessors

- within 1 kpc of the galactic centre
- higher metallicity

(van Donkelaar et al., in prep)

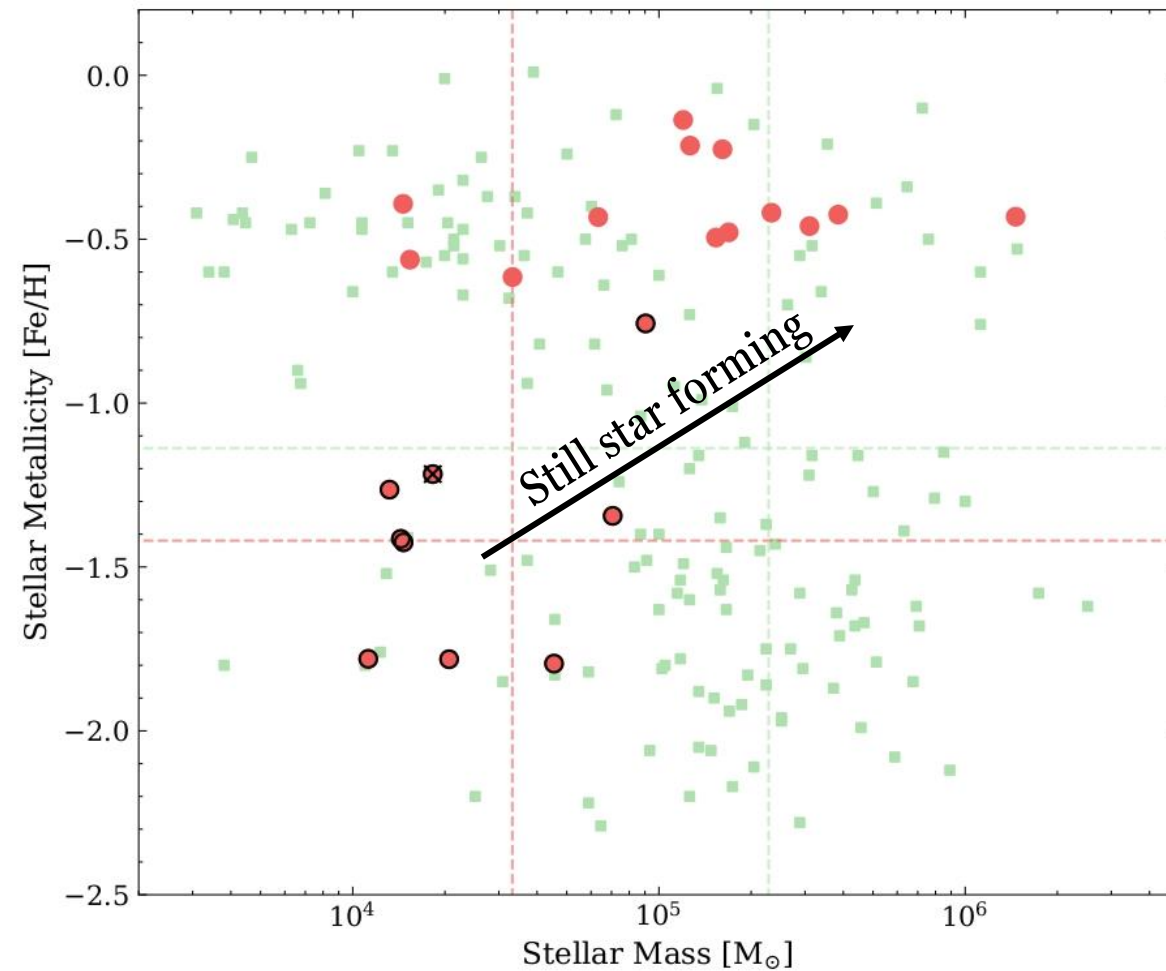
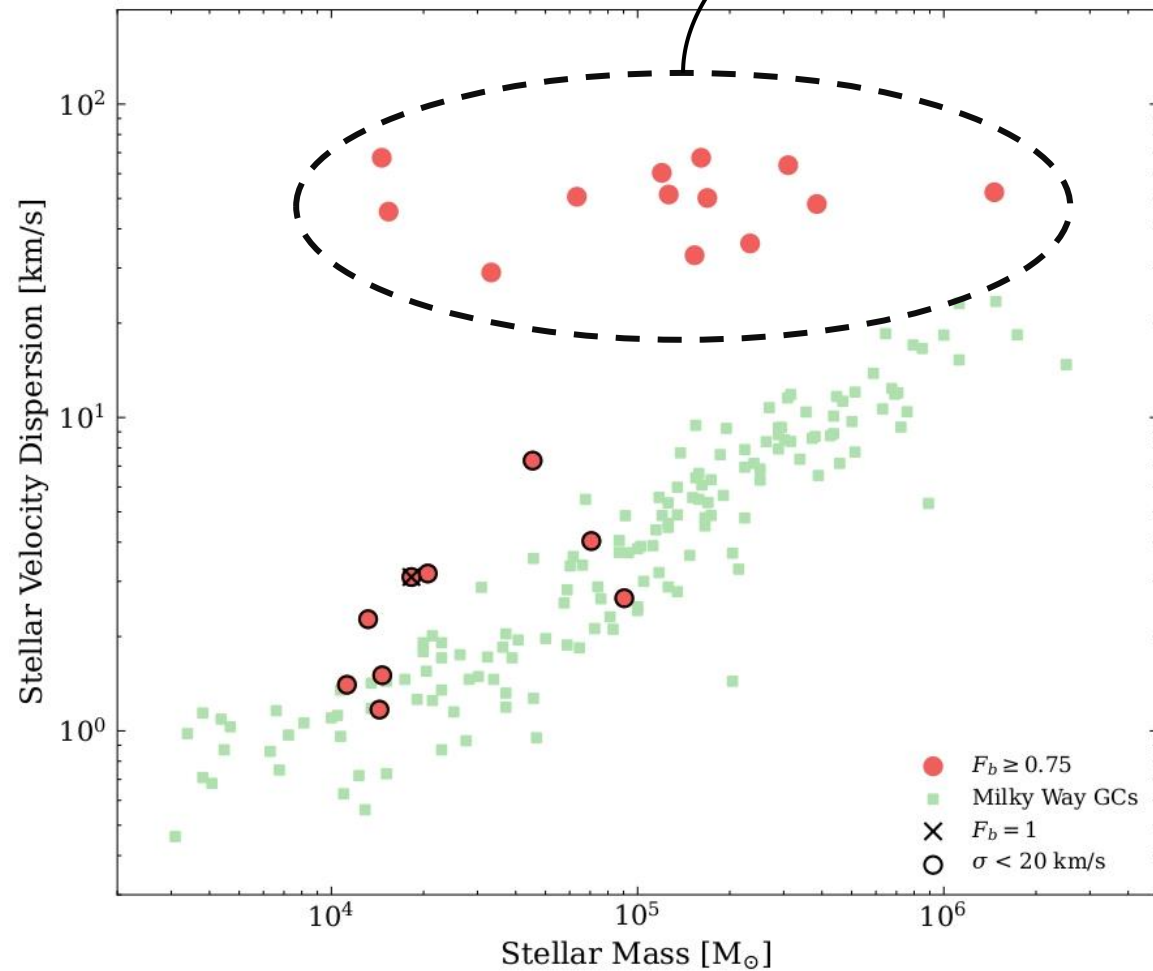


N = 9

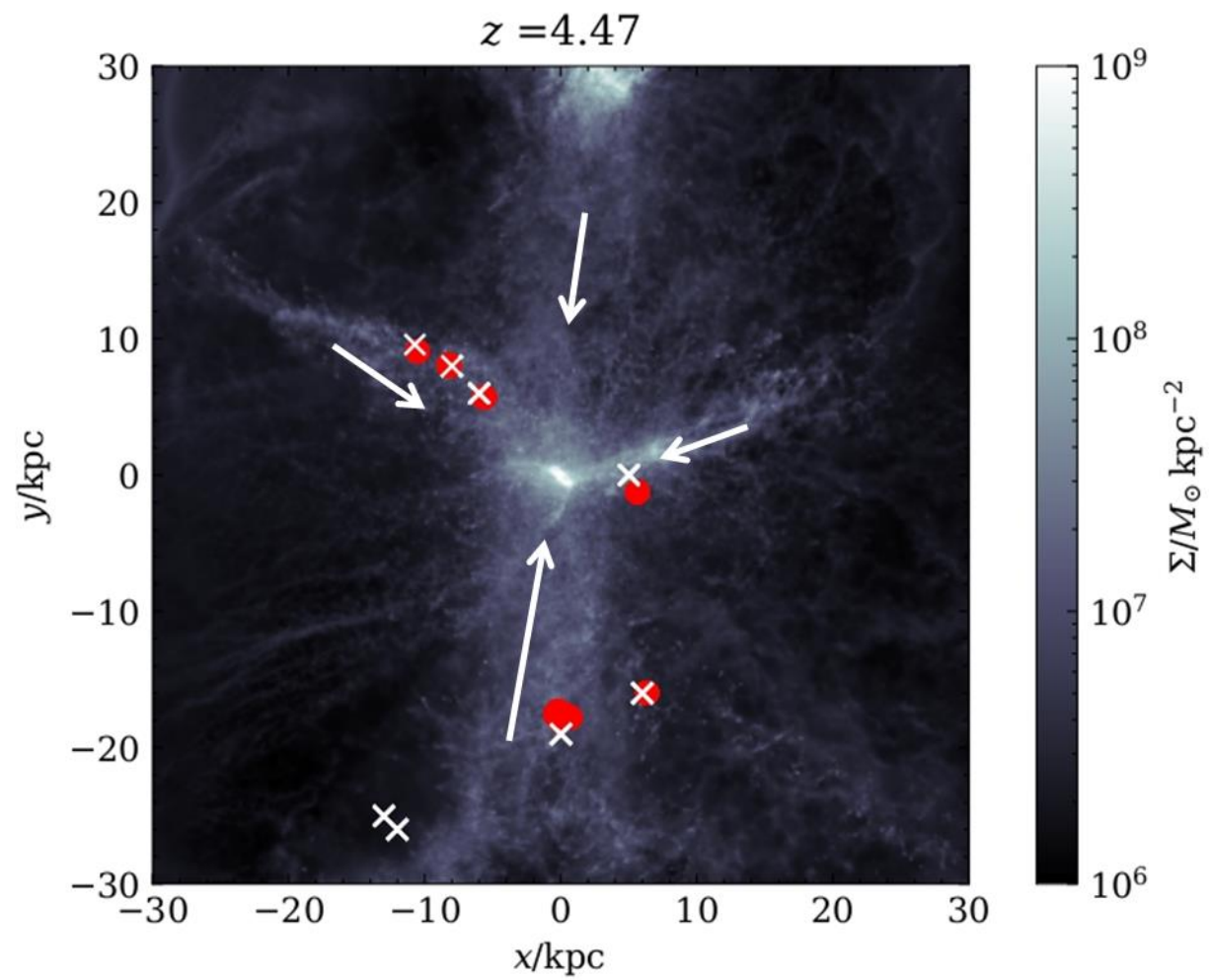
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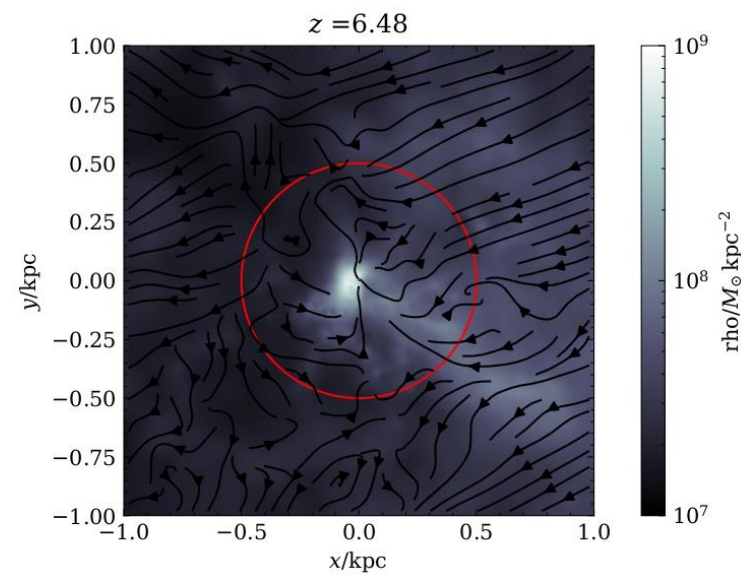
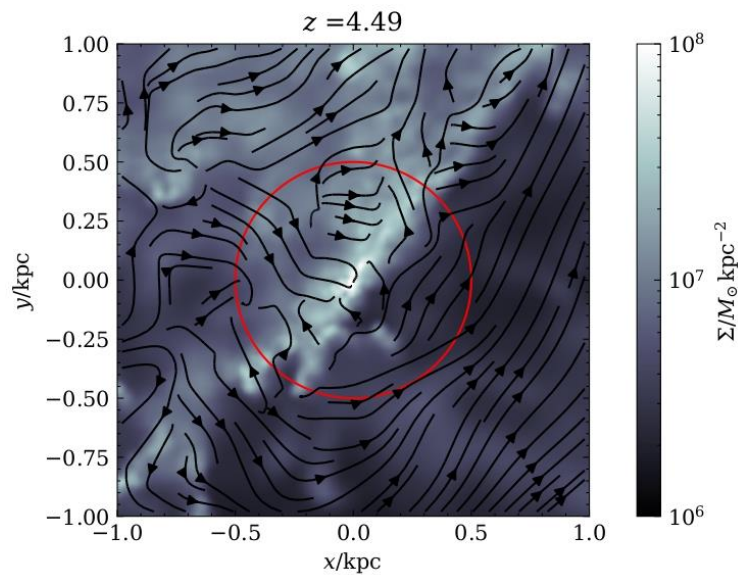
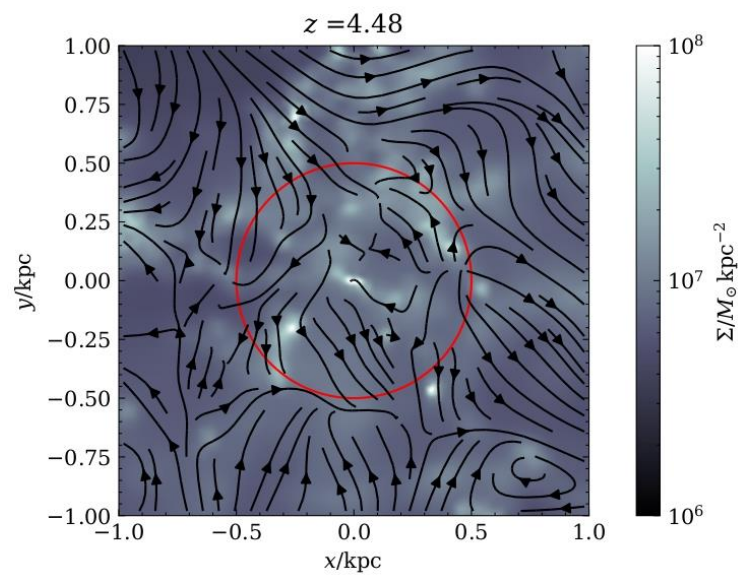


**8 of these objects form
between $z = 4.64$ and $z = 4.47$**



Gas inflow

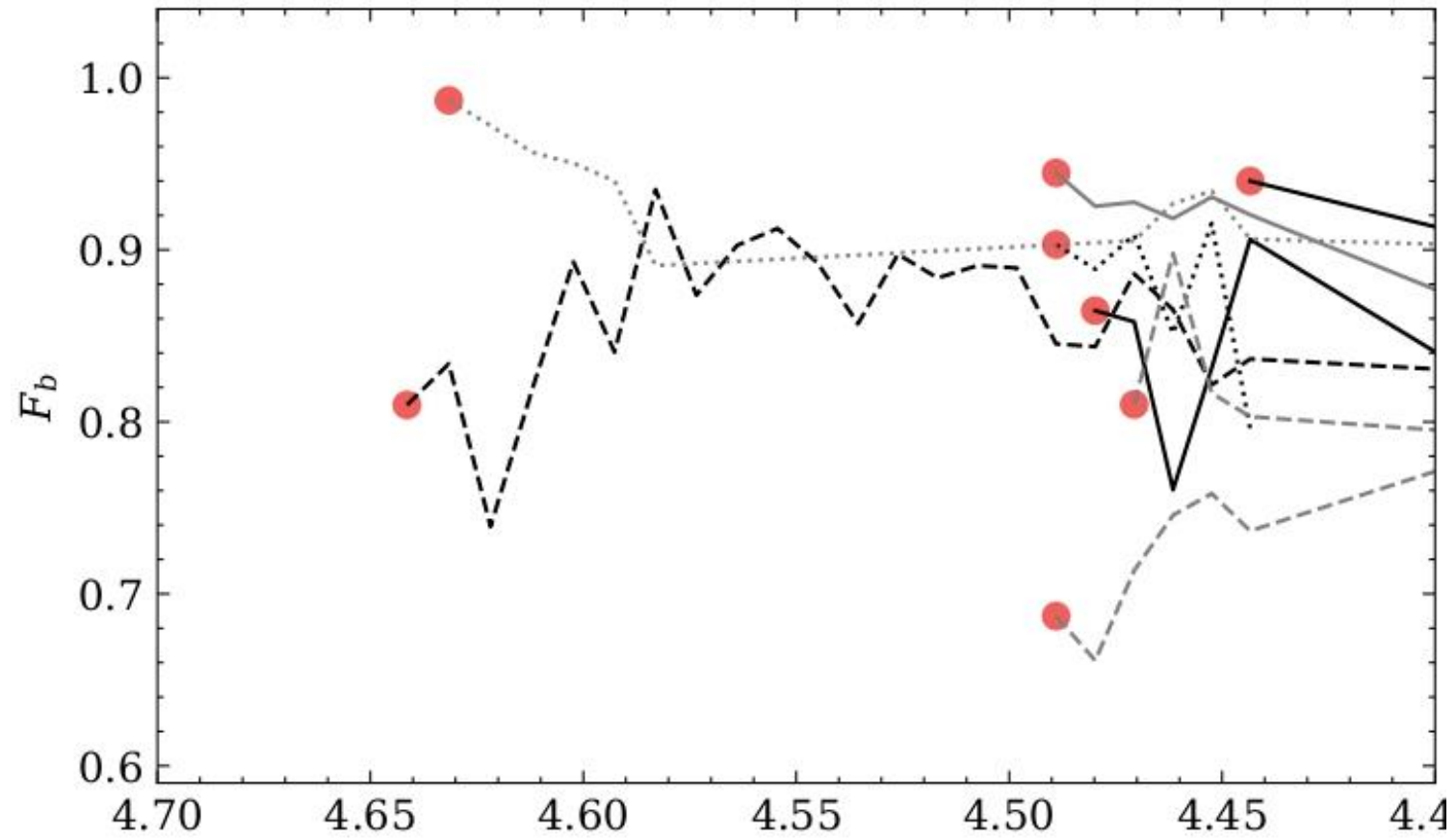
On a smaller scale:



- Isolated
- Inflowing tail of gas

- Surrounded by gas
- No specific inflowing filaments visible

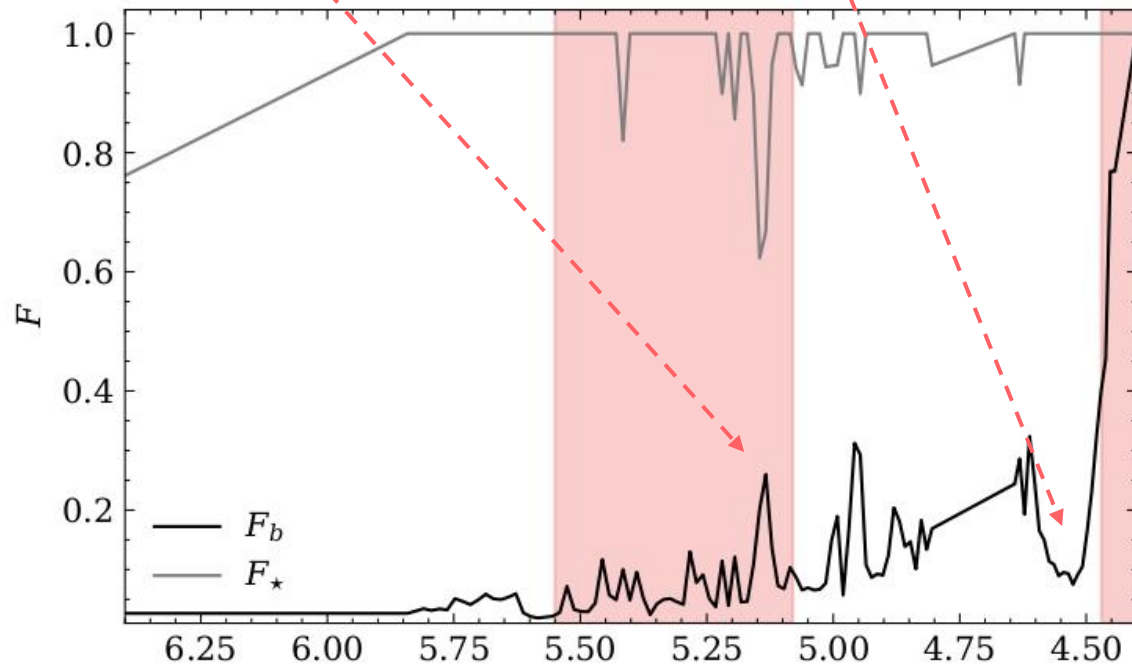
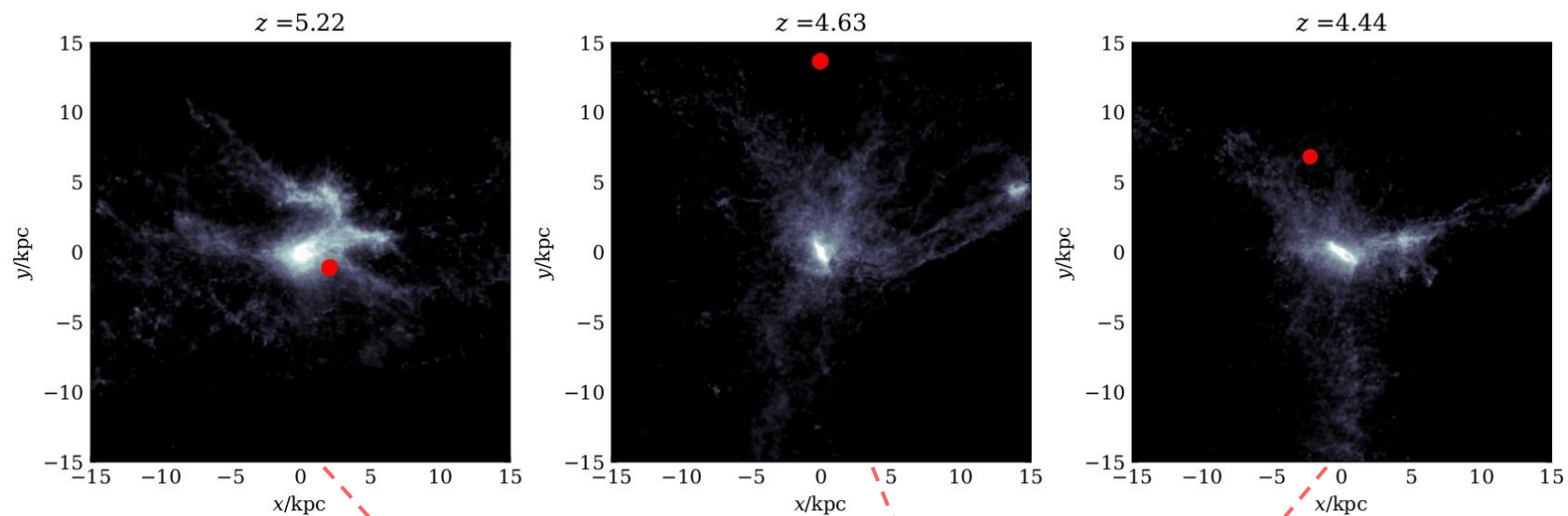
Born with high baryon fraction \rightarrow stays high



So what about the 9th object?

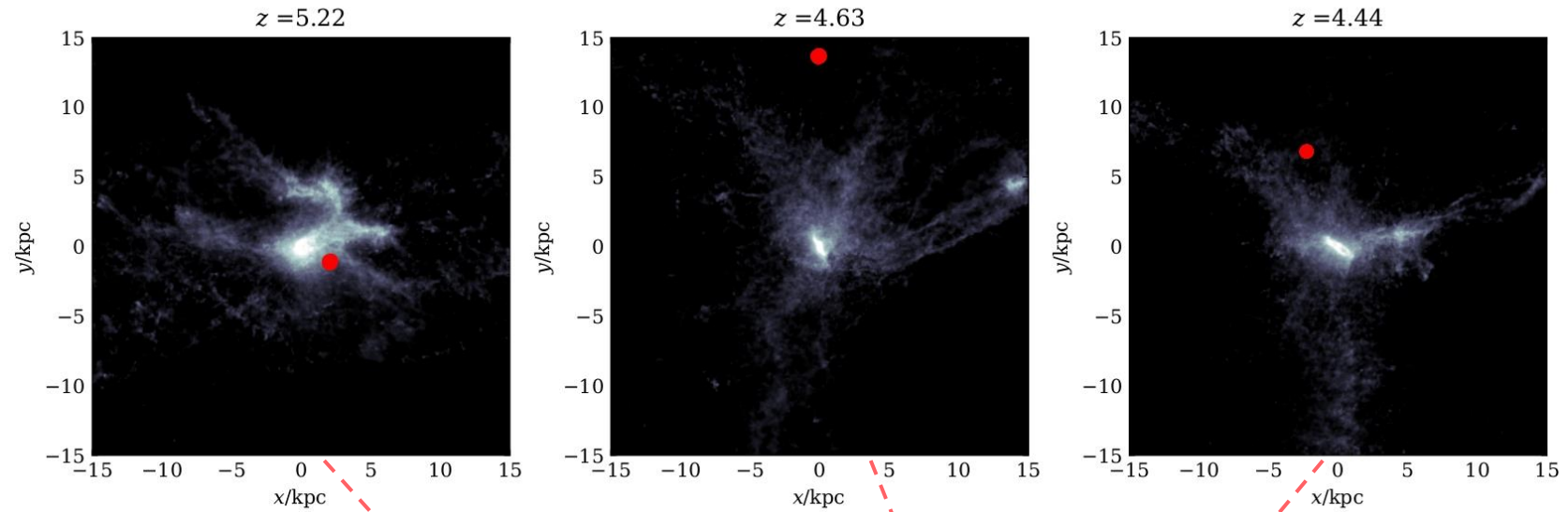
The imposter

- Older
- Dark matter dominated at birth
- More isolated during formation
- $F_{\star} = 1.00$, $F_b = 1.00$



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Influence on the galaxy?

- Includes stars formed in the galaxies this disc.

