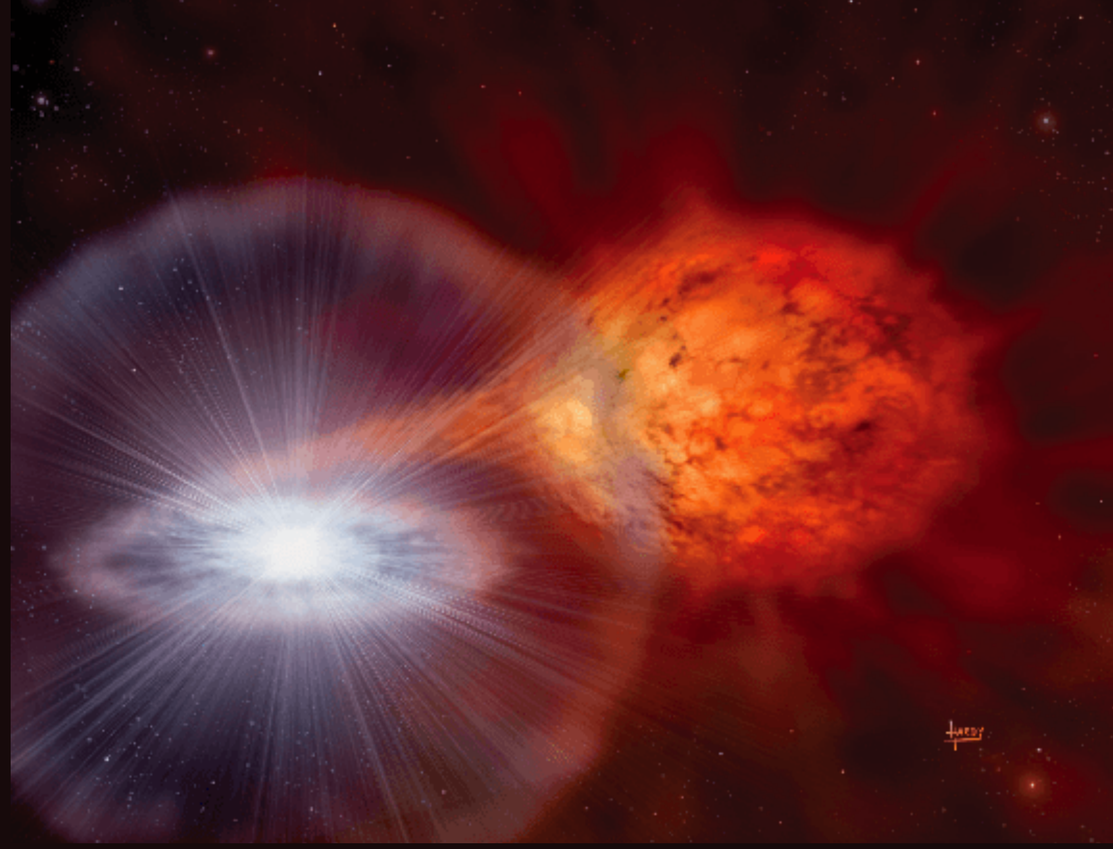
Transient Science at Space Telescope



Do pass z=2, Do Collect Type Ia Supernovae: Breaking Out of Redshift Jail with *JWST*

Justin Pierel
NASA Einstein Fellow

STScI | TSST

jpierel@stsci.edu

Why should you care?

jpierel@stsci.edu

Why should you care?

- Cosmology — Hubble constant and evolving dark energy

jpierel@stsci.edu

Why should you care?

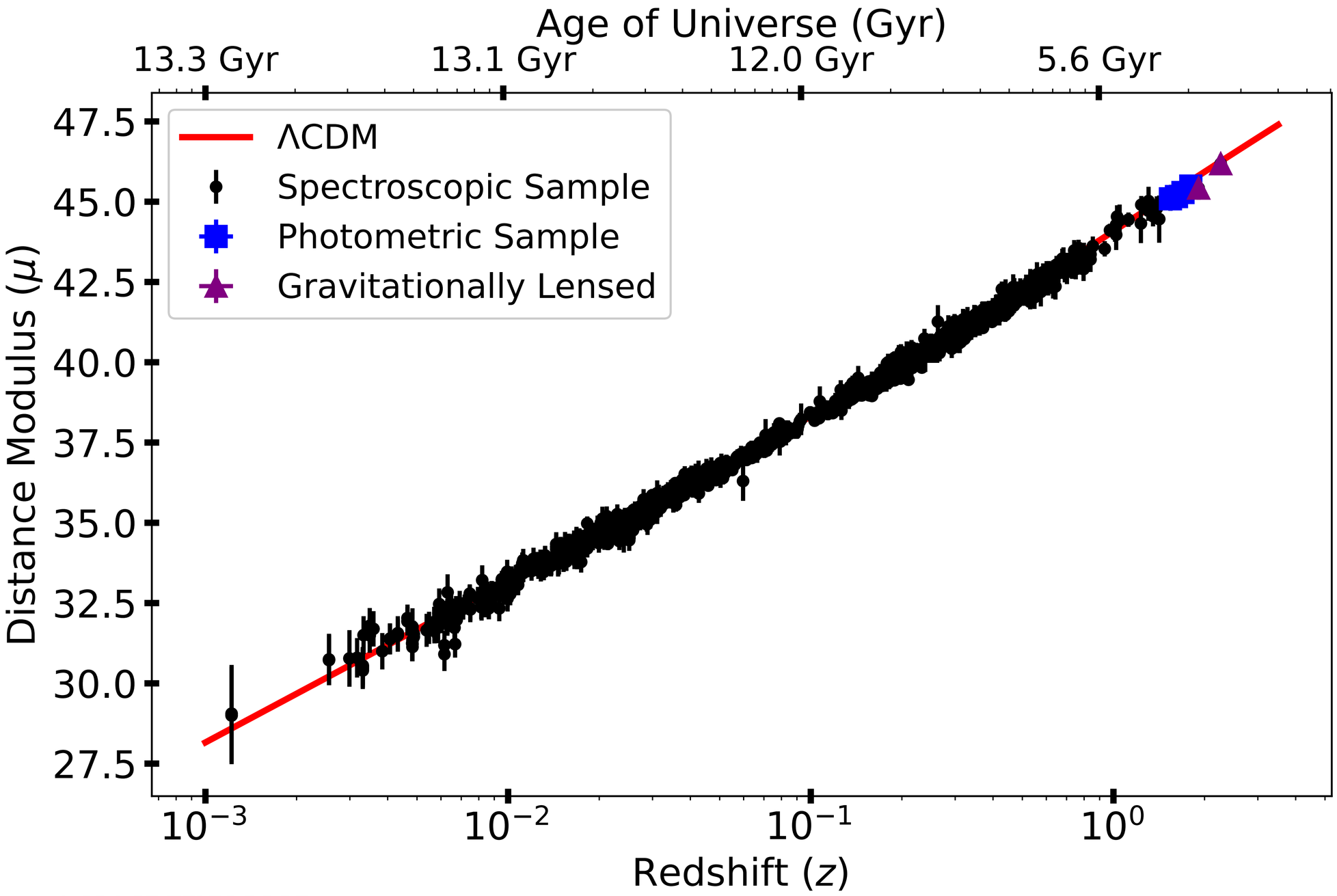
- Cosmology — Hubble constant and evolving dark energy
- Opportunities for collaboration — Galaxy spectroscopy, repeated imaging

jpierel@stsci.edu

Why should you care?

- Cosmology — Hubble constant and evolving dark energy
- Opportunities for collaboration — Galaxy spectroscopy, repeated imaging
- You might not (and that's okay)

jpierel@stsci.edu



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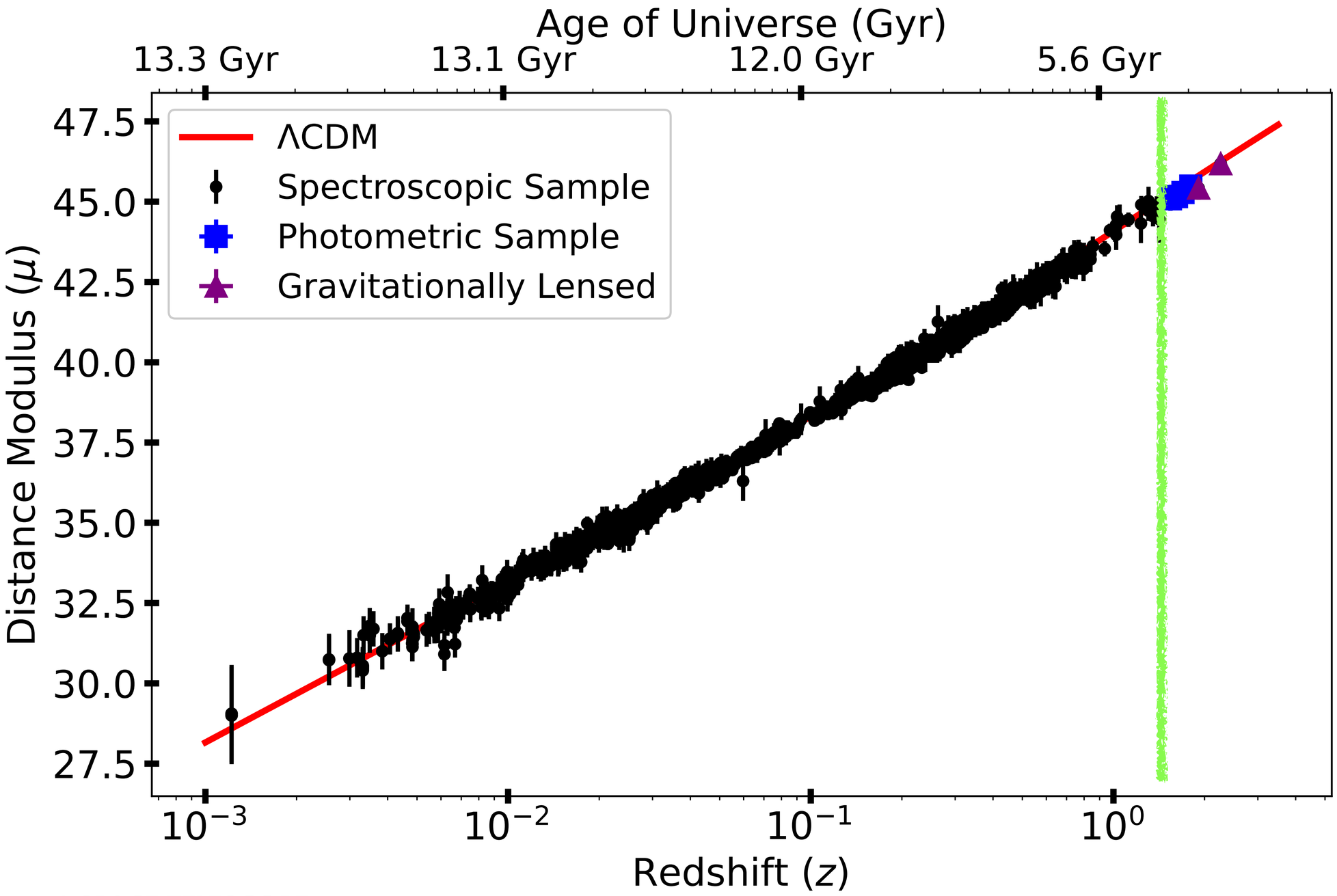

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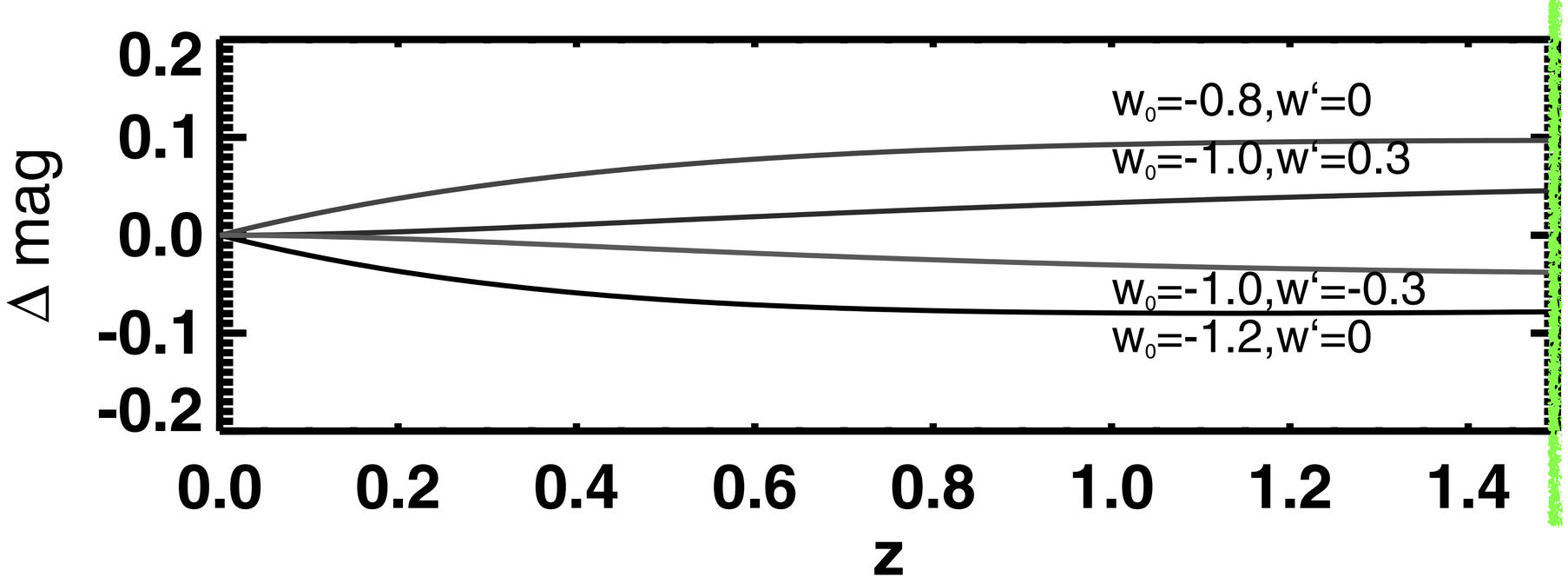

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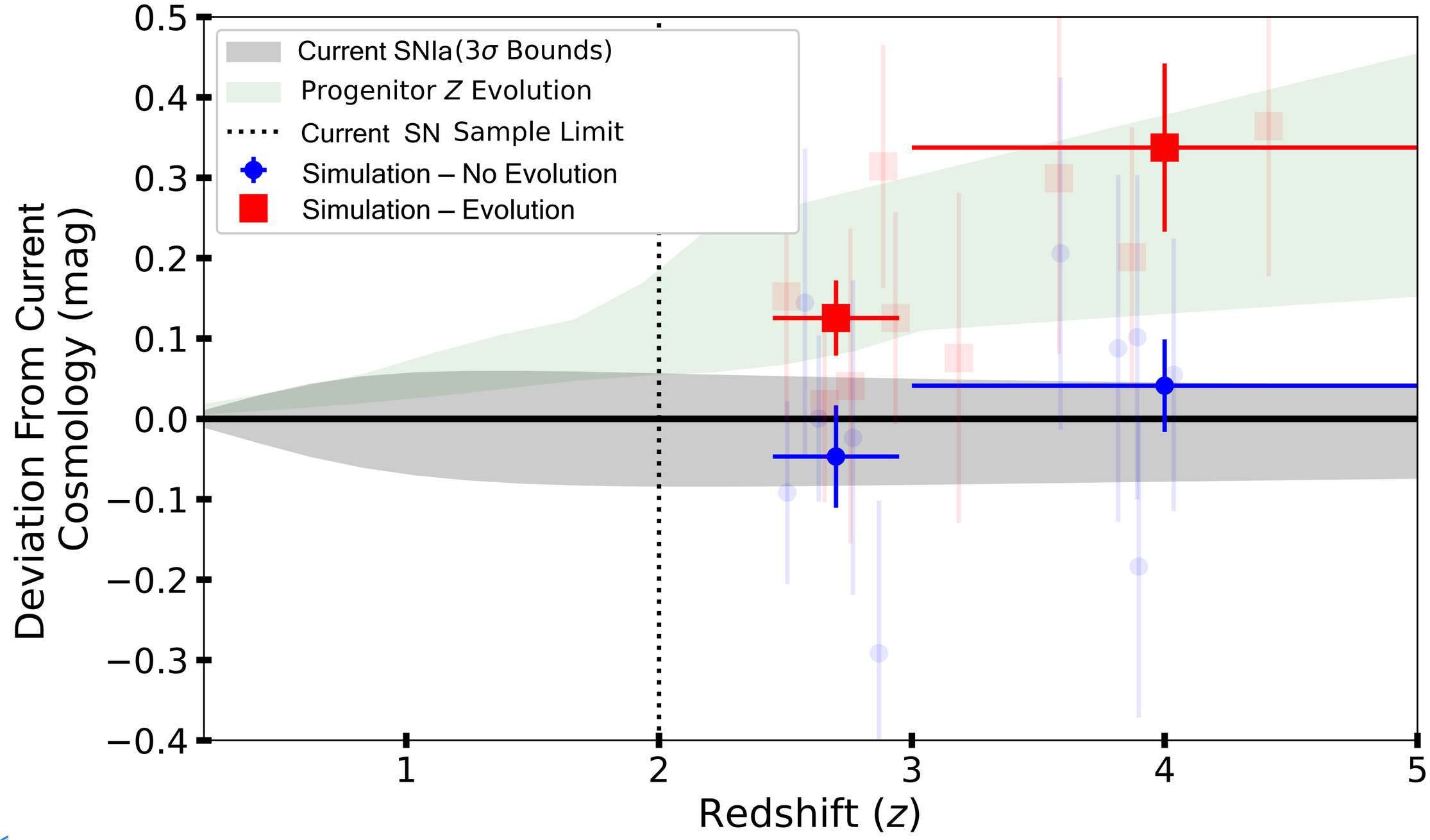

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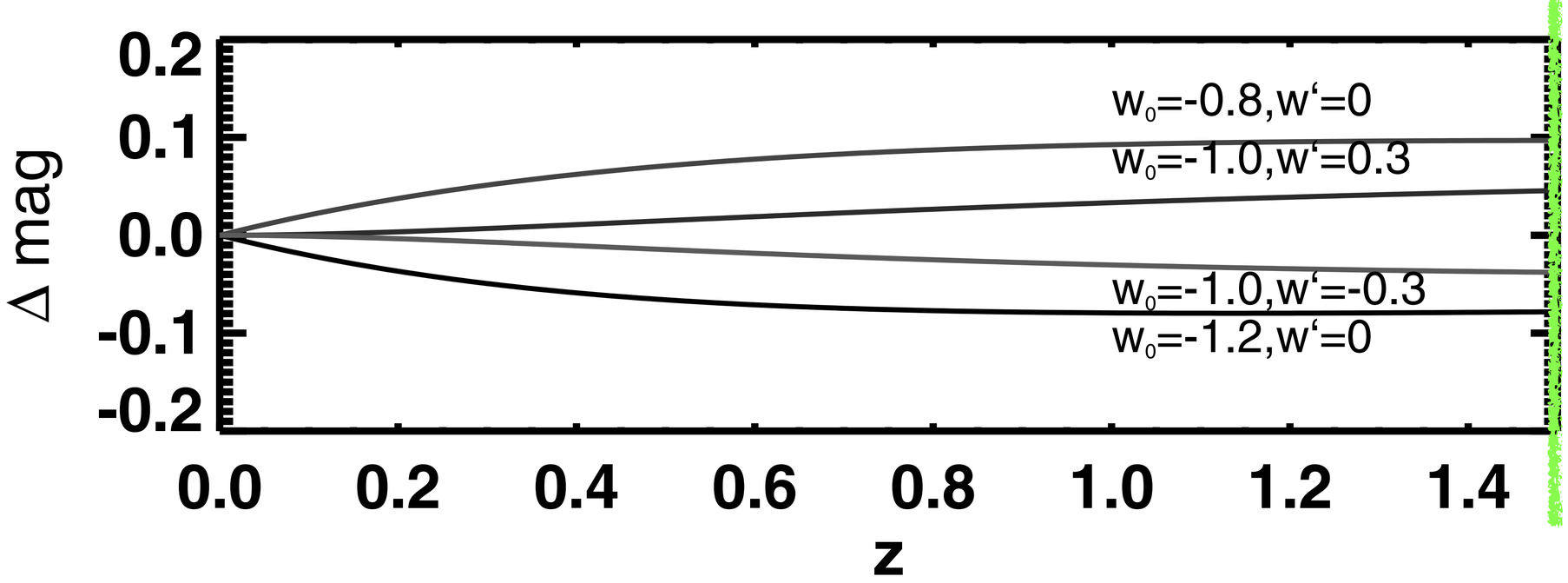

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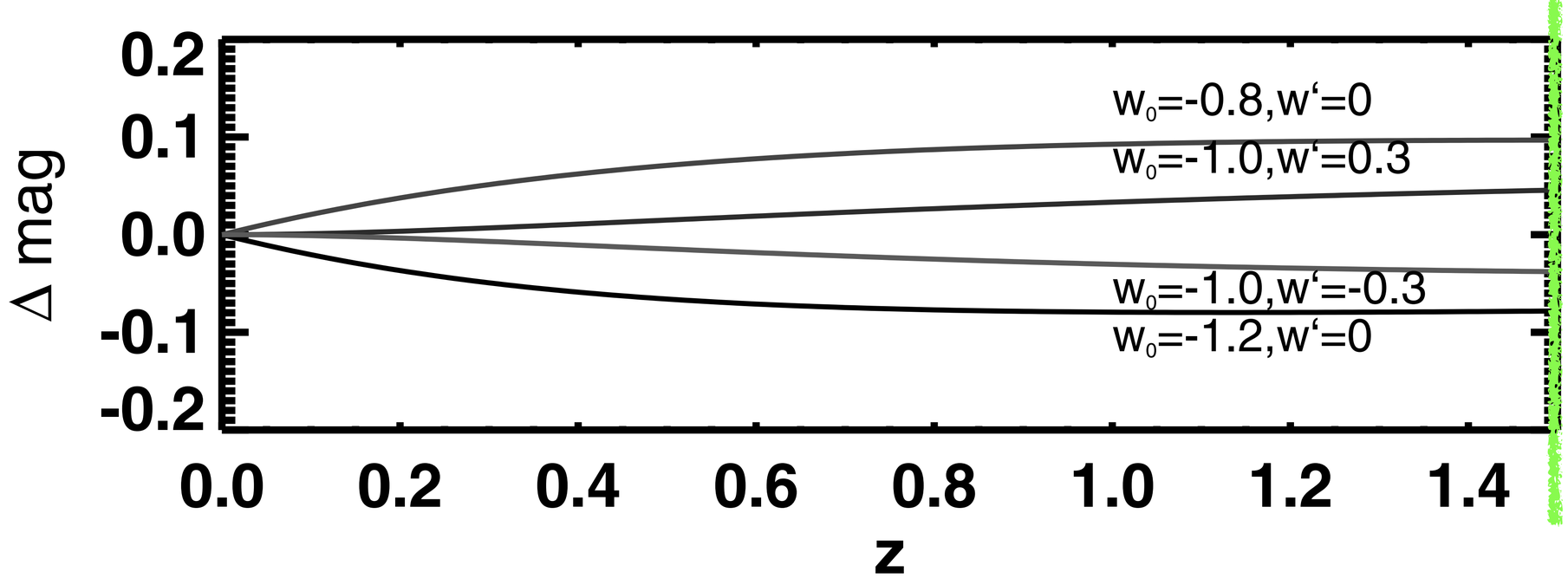
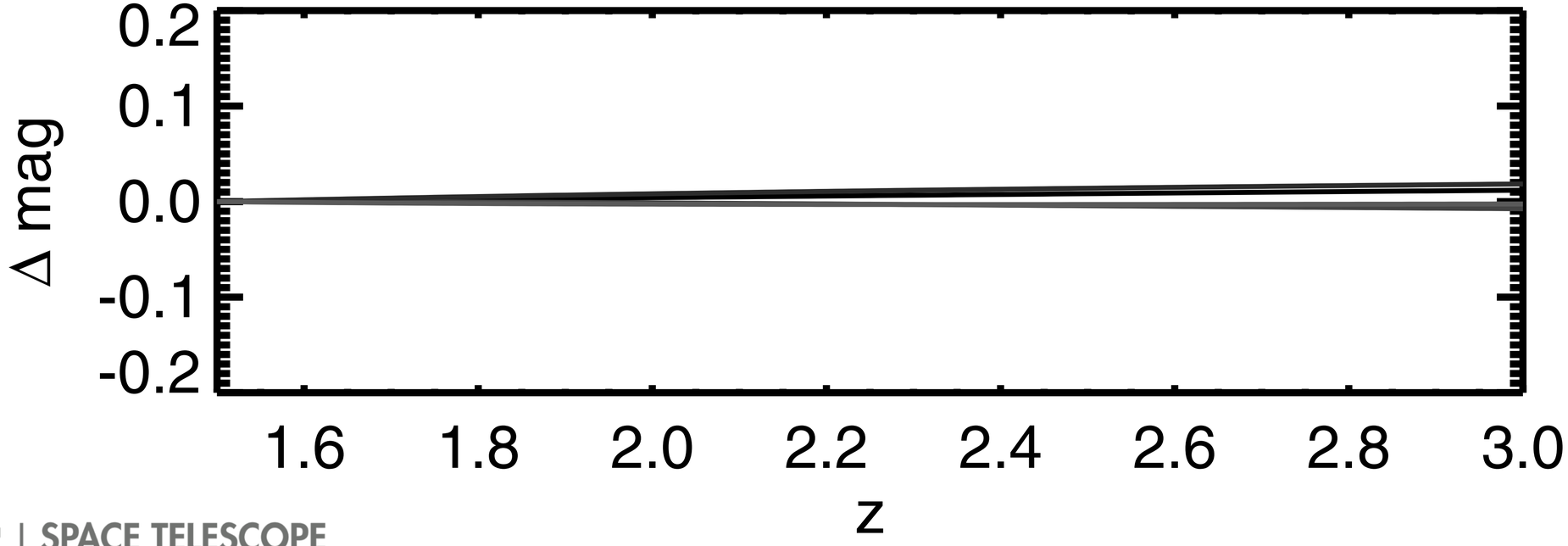
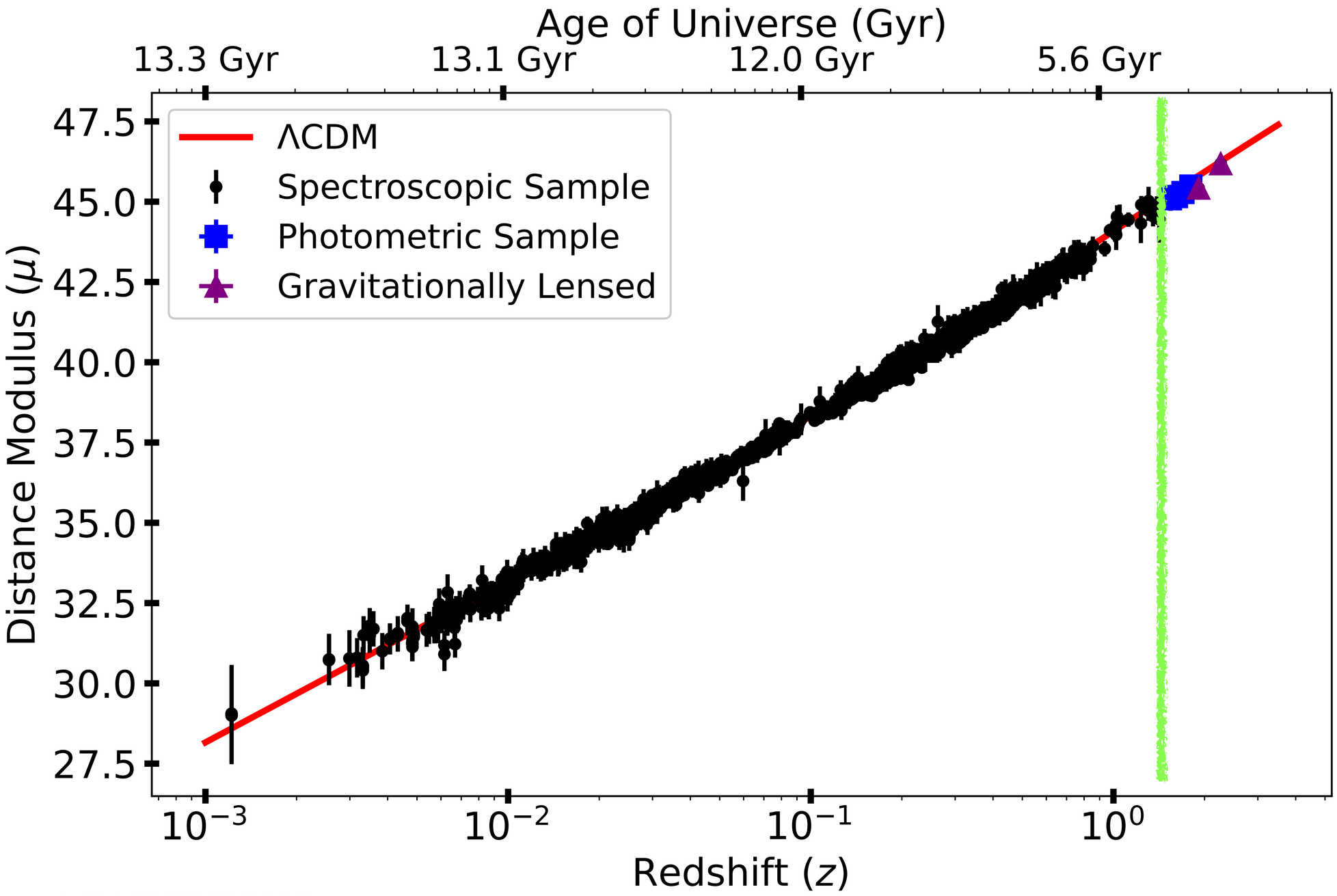

0.2
0.1
0.0
-0.1
-0.2
Δ mag
w0=-0.8,w'=0
w0=-1.0,w'=0.3
w0=-1.0,w'=-0.3
w0=-1.2,w'=0
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
z


0.2
0.1
0.0
-0.1
-0.2
Δ mag
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
z



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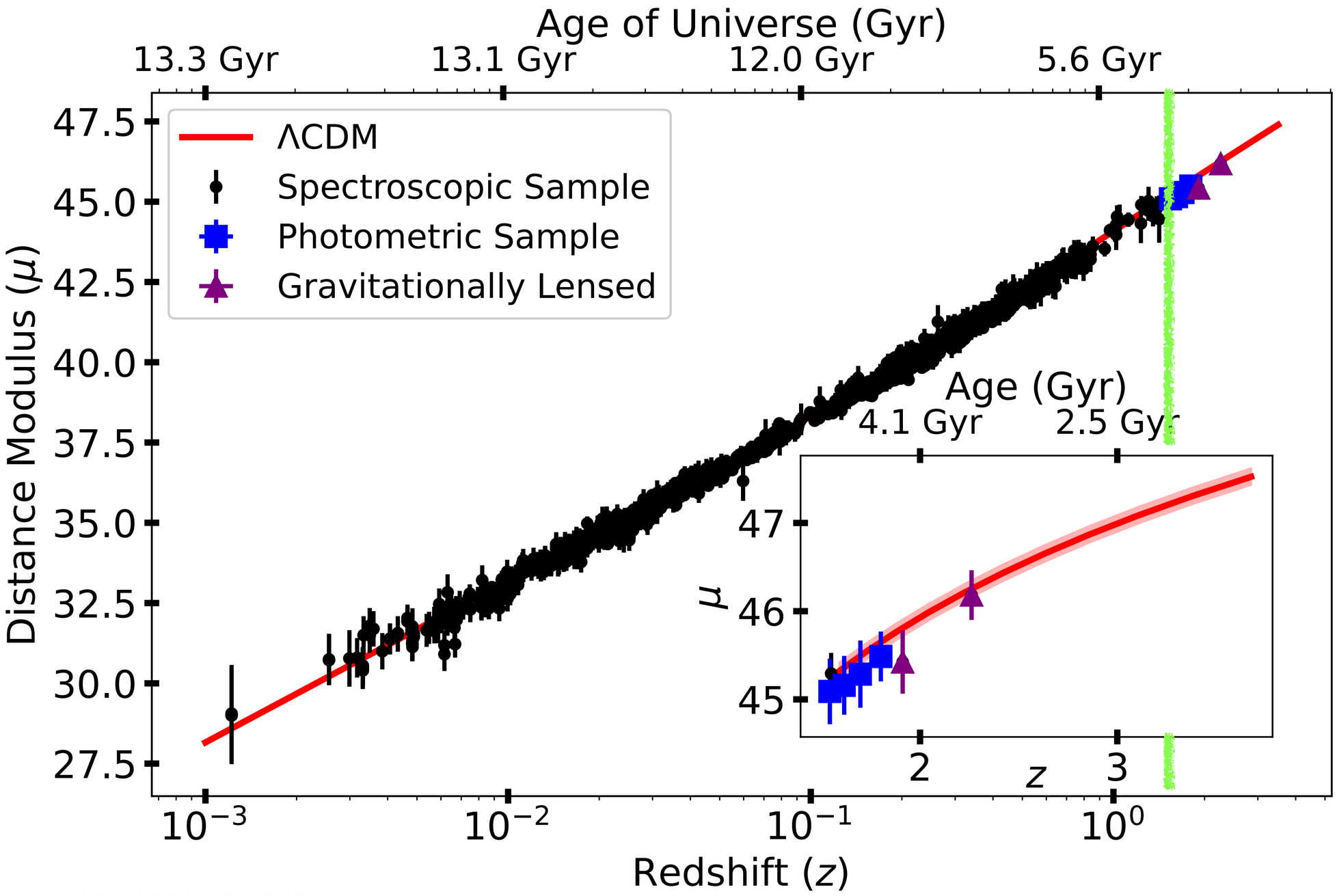

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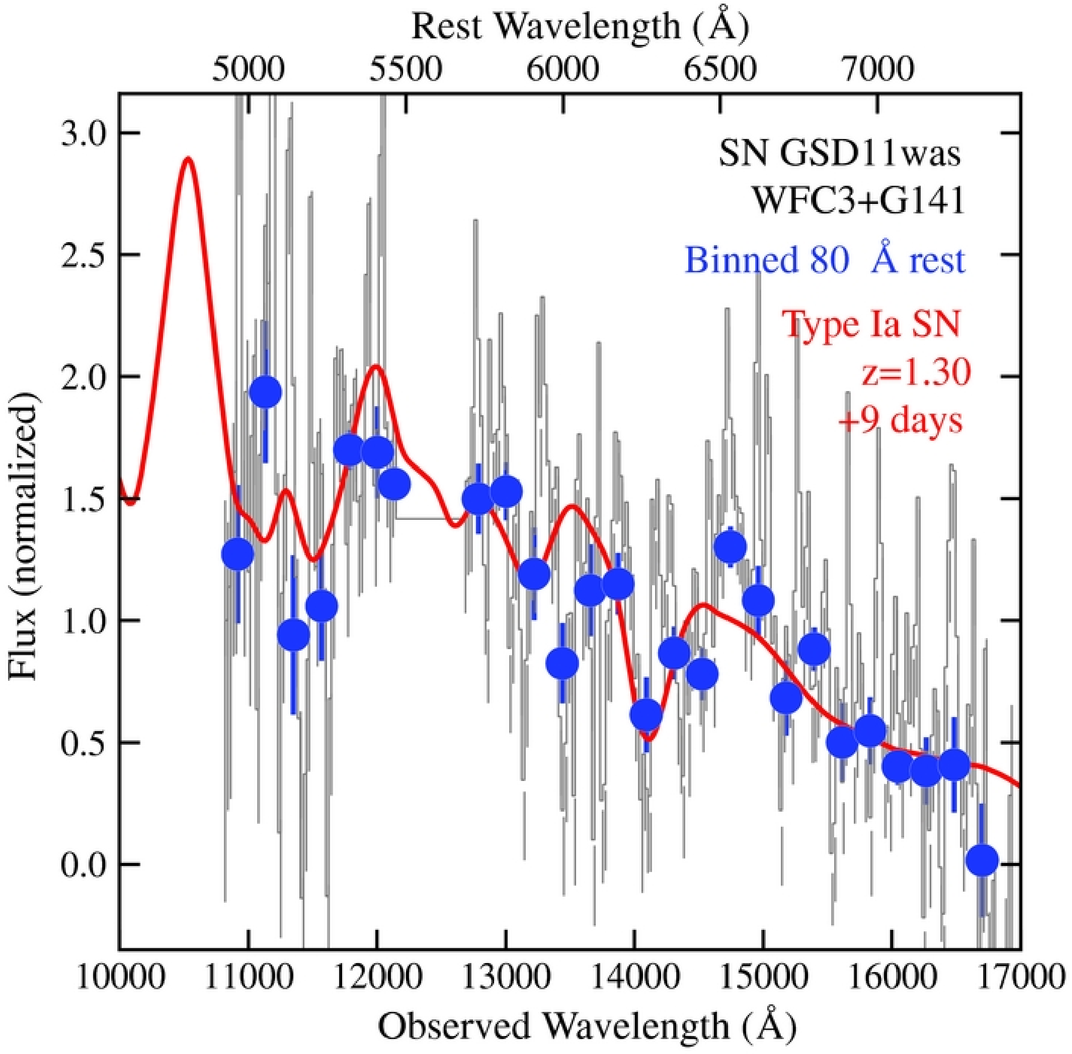
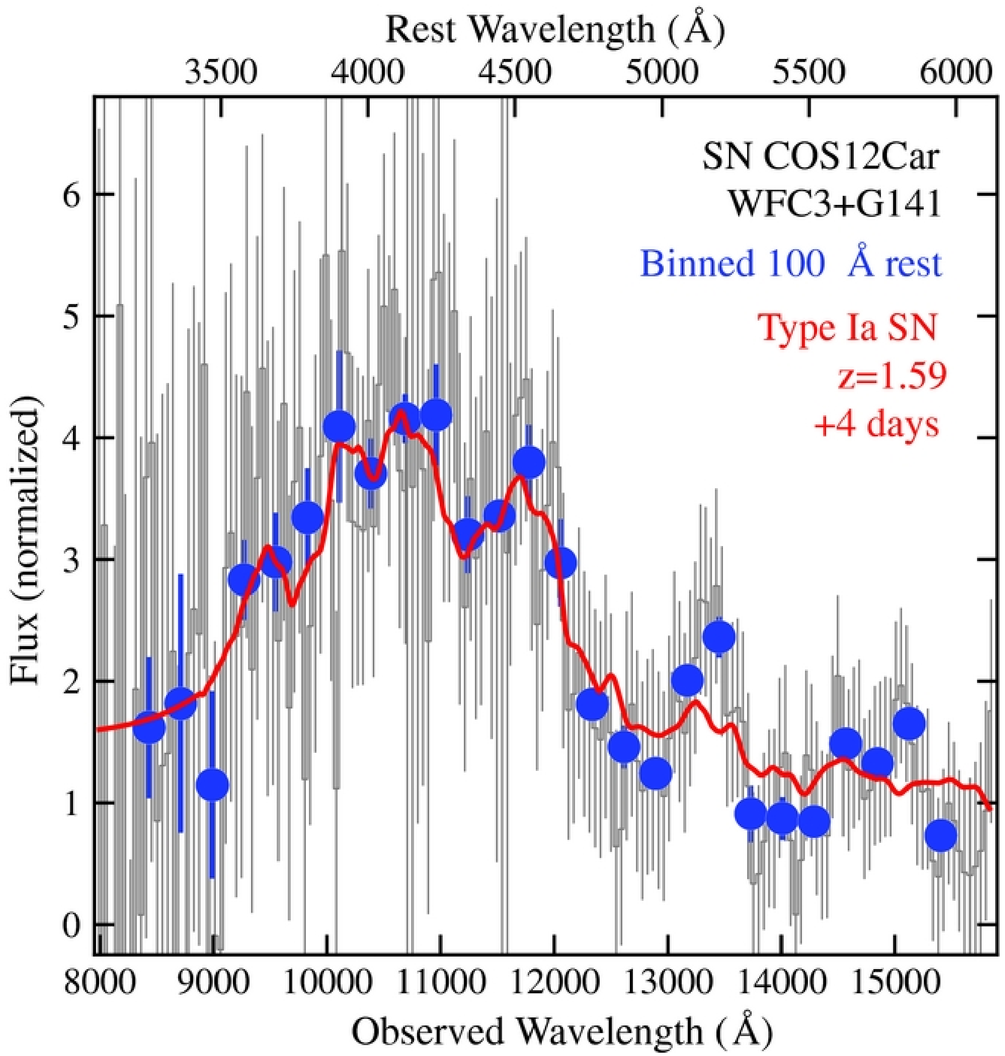
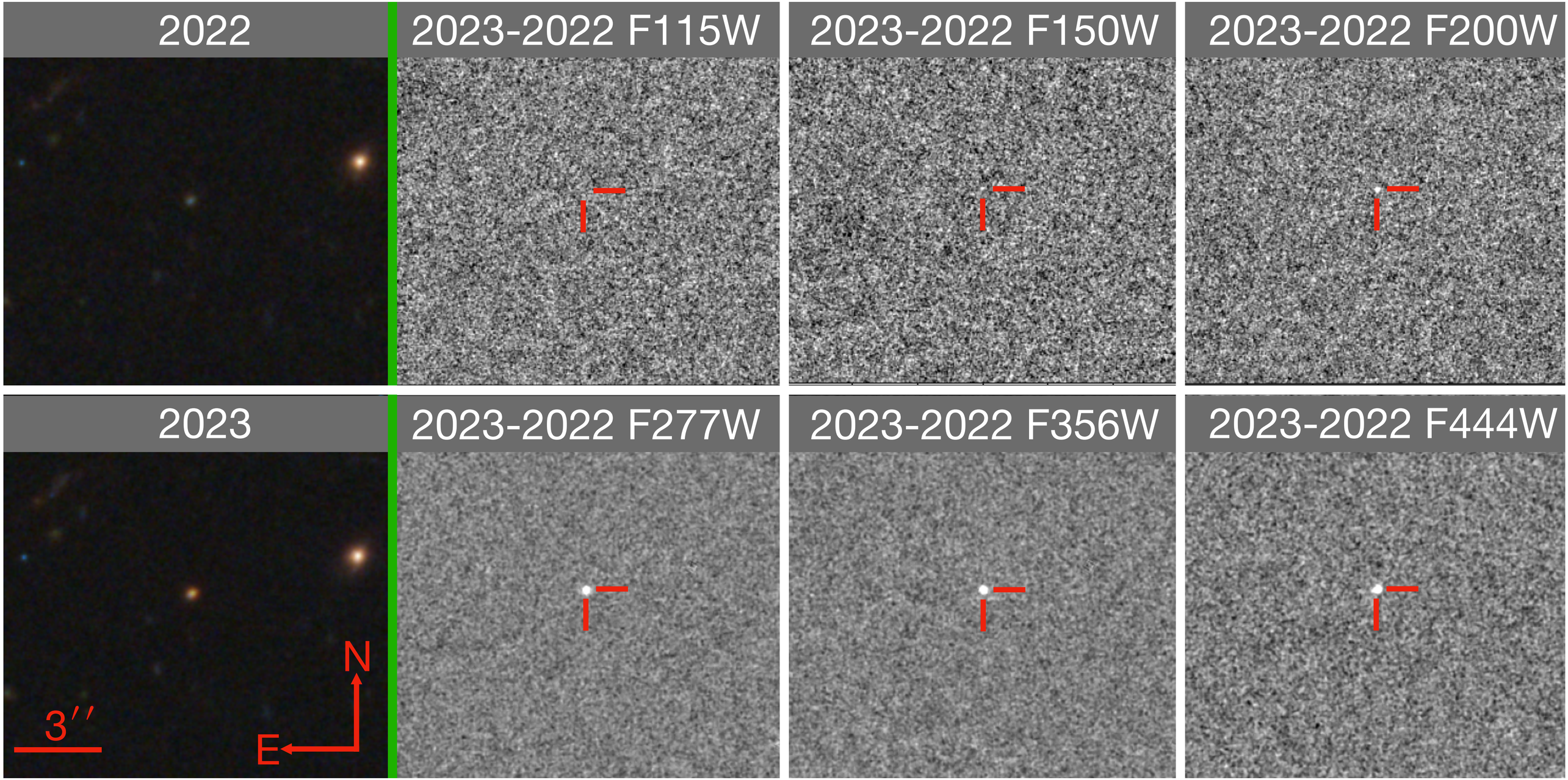




jpierel@stsci.edu

JWST

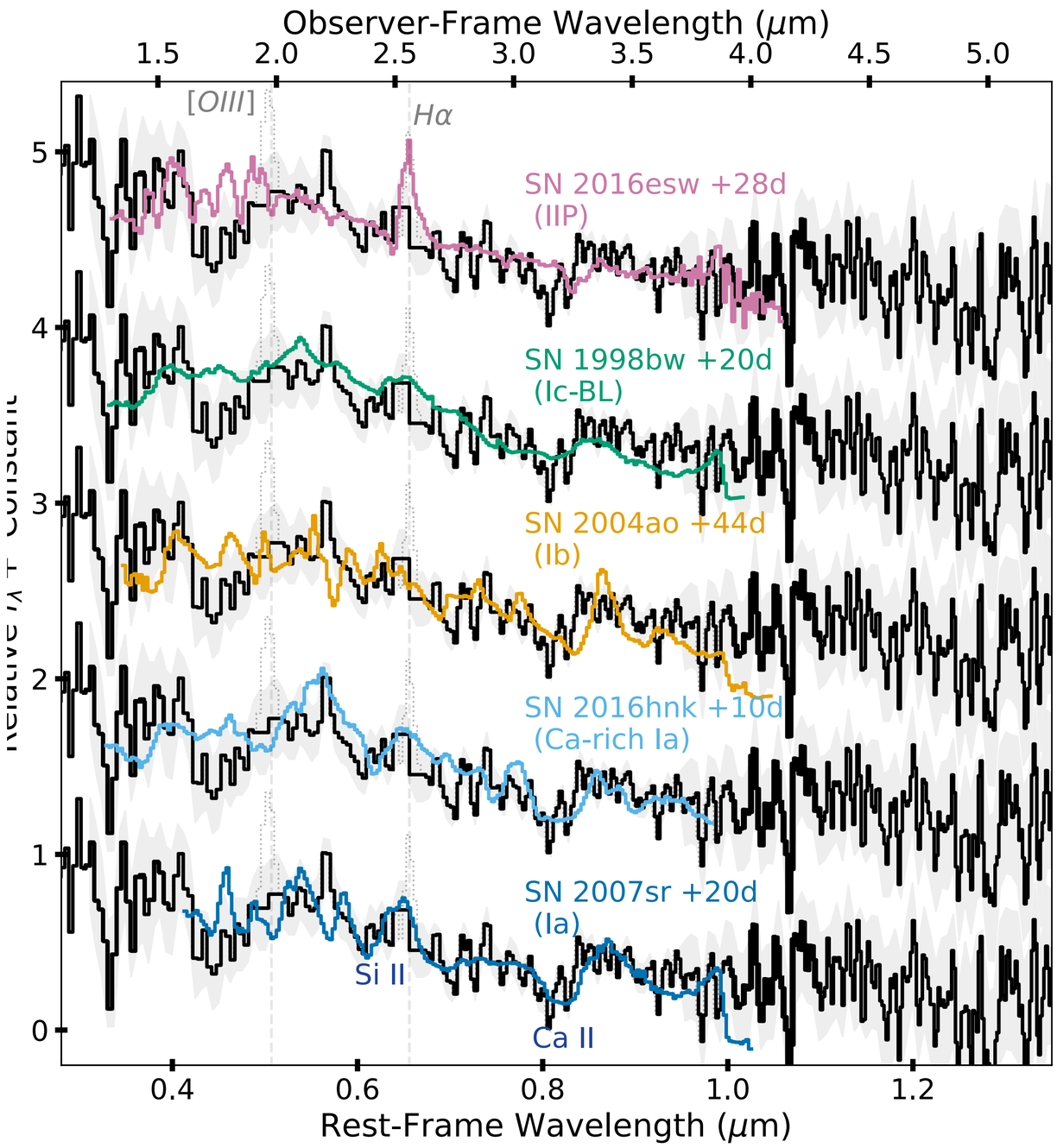
jpierel@stsci.edu



jpierel@stsci.edu

z=2.9!

Piere+24



JADES JWST ADVANCED DEEP EXTRAGALACTIC SURVEY

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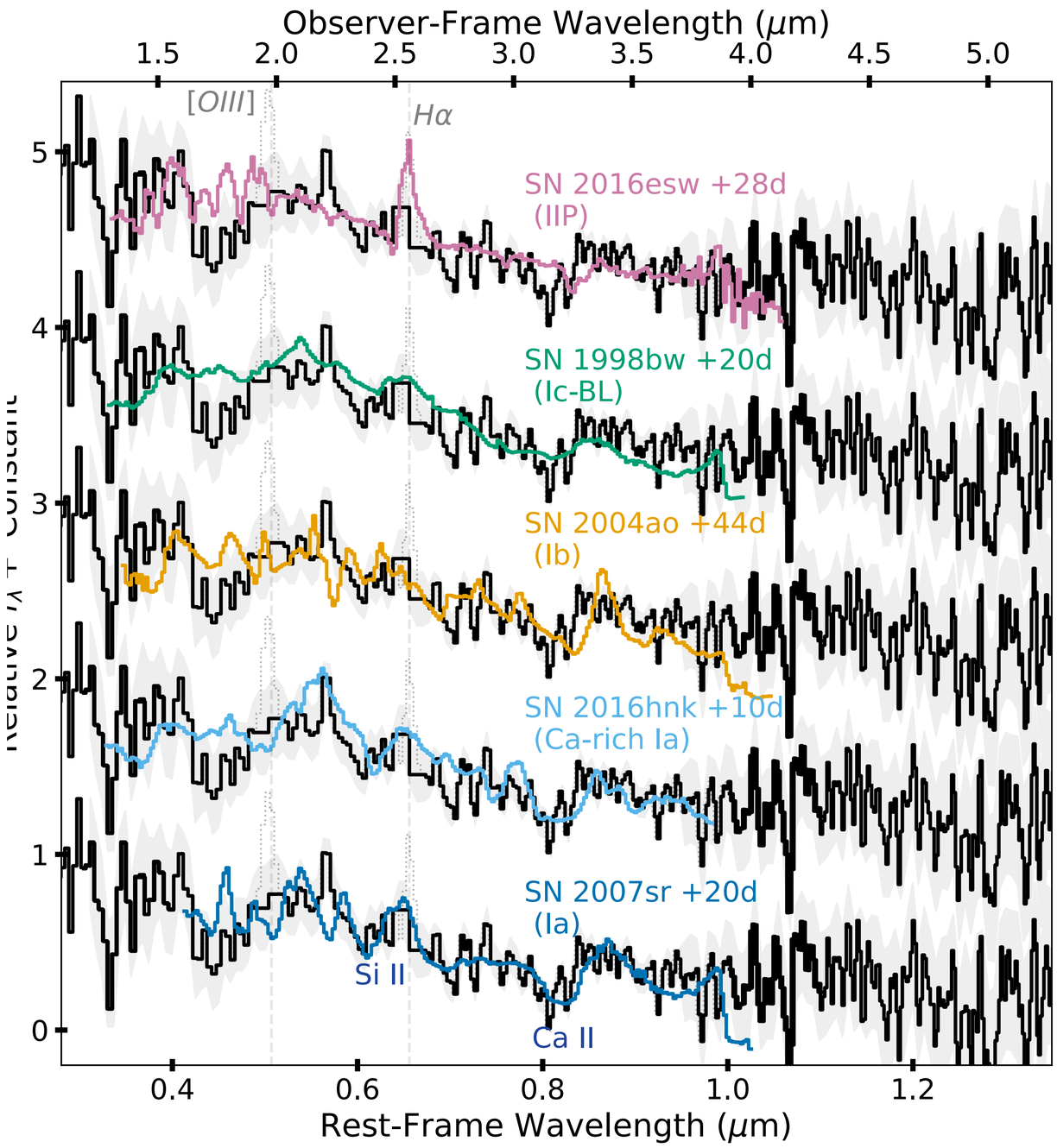
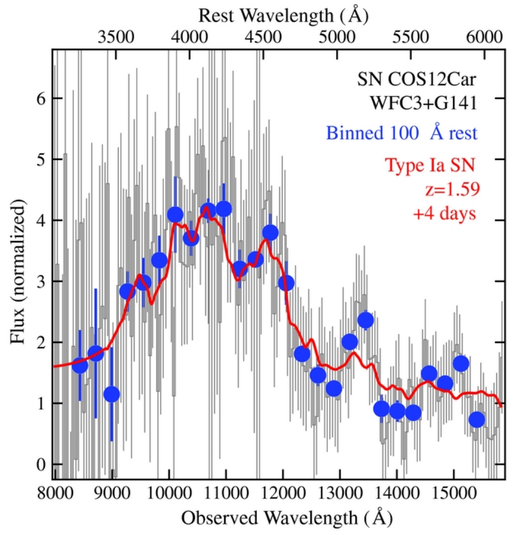
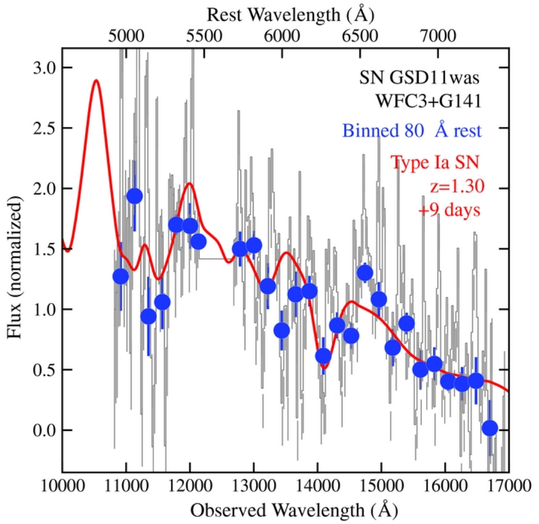
z=2.9!

Piere l+24







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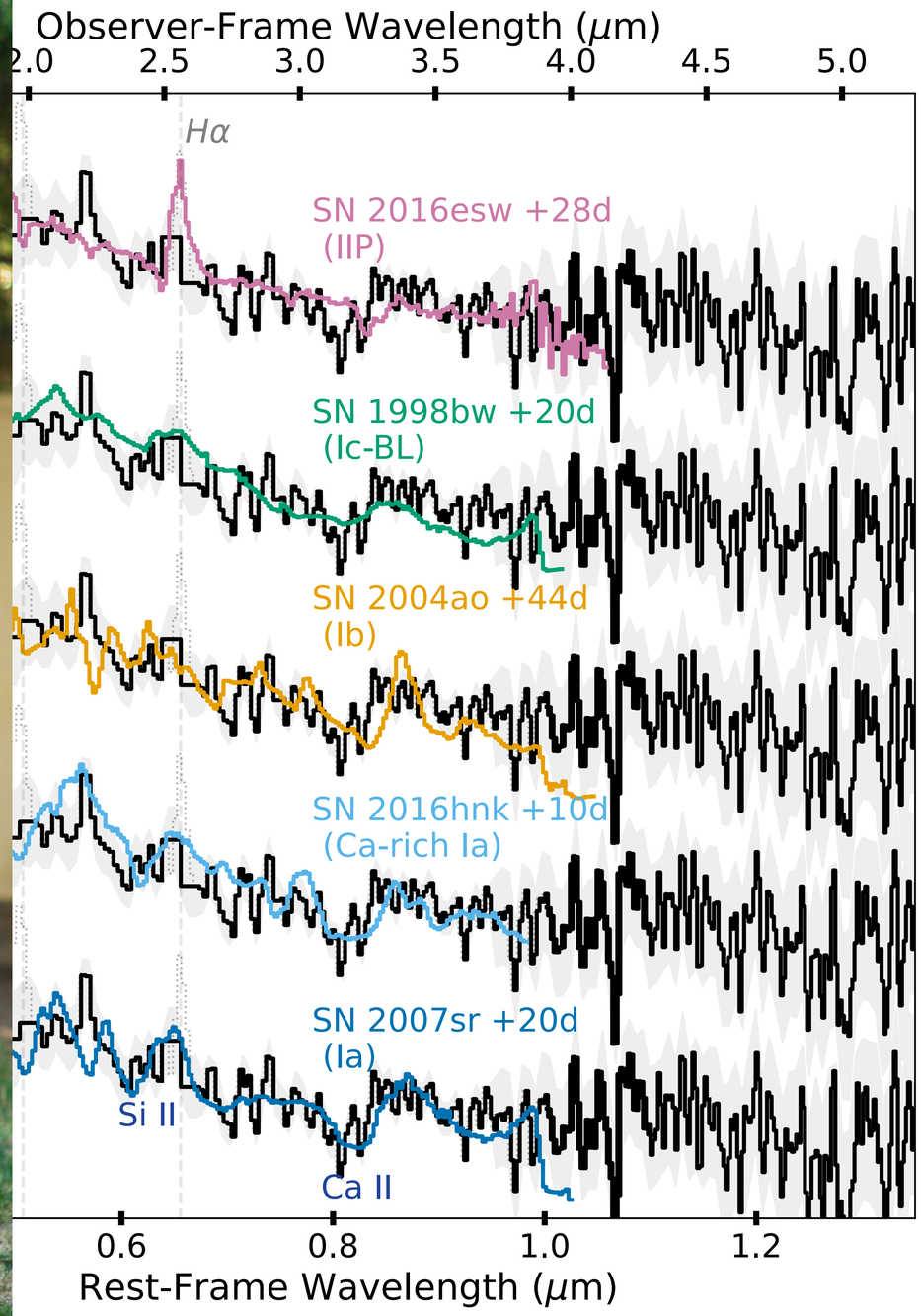

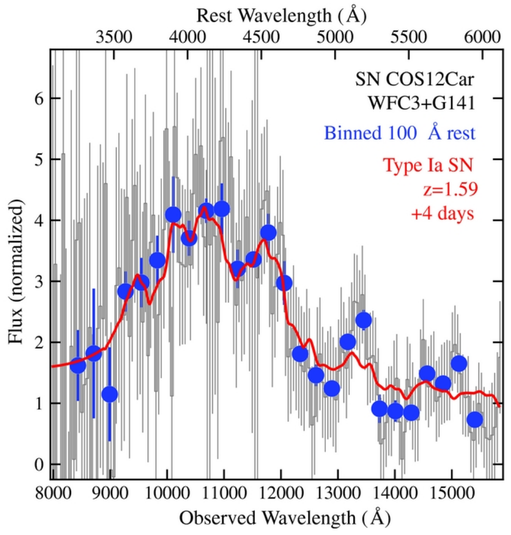

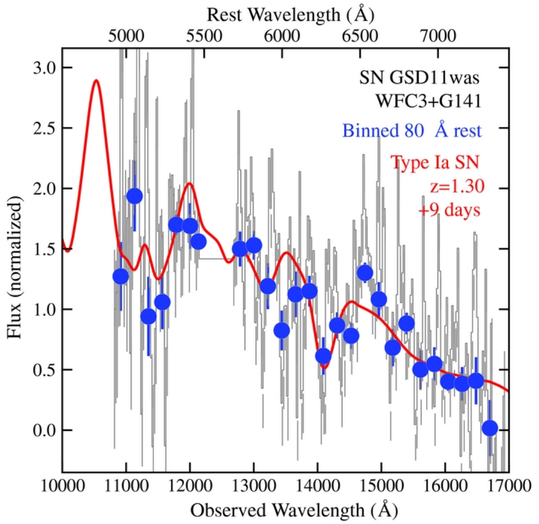

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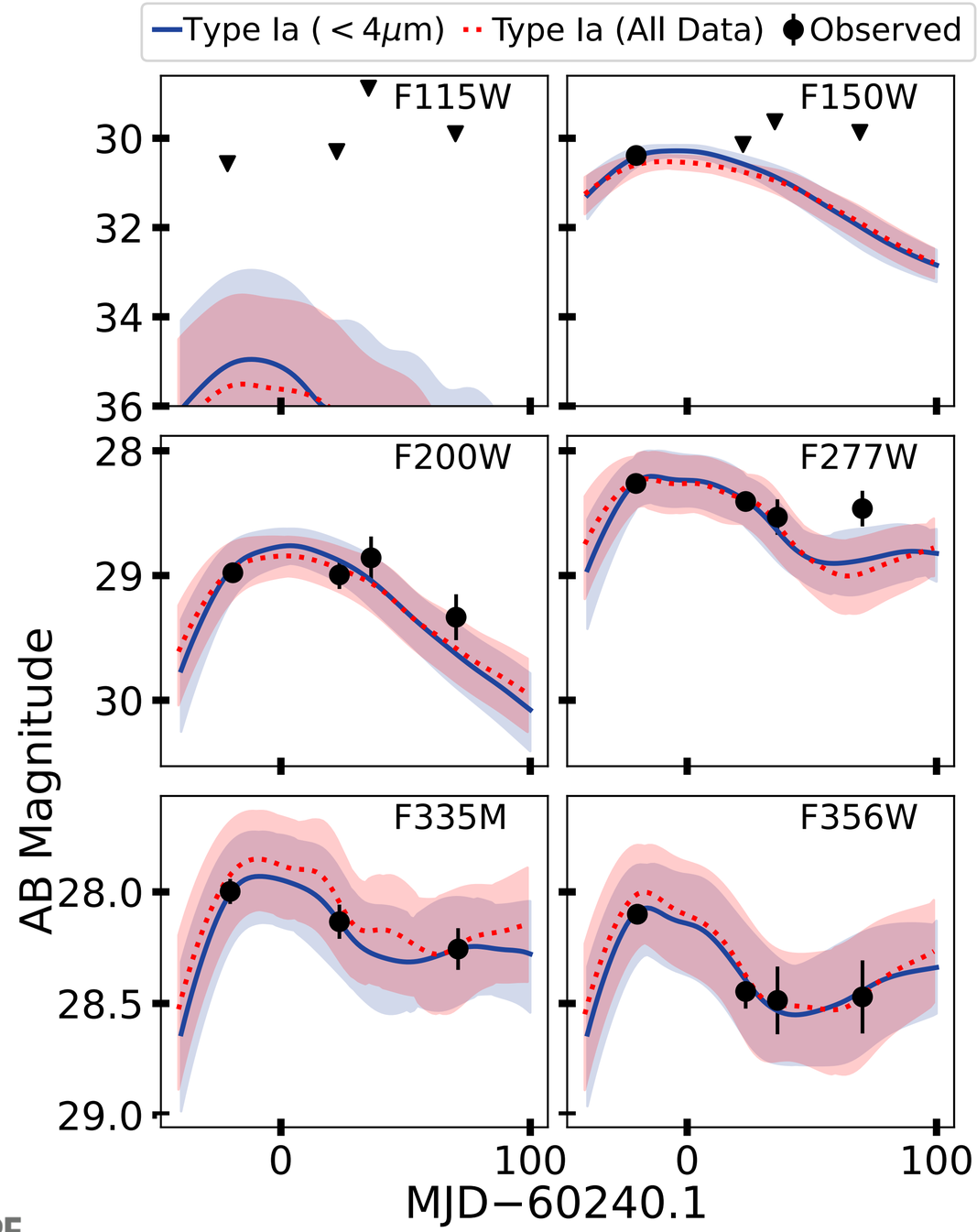
z=2.9!

Piere l+24



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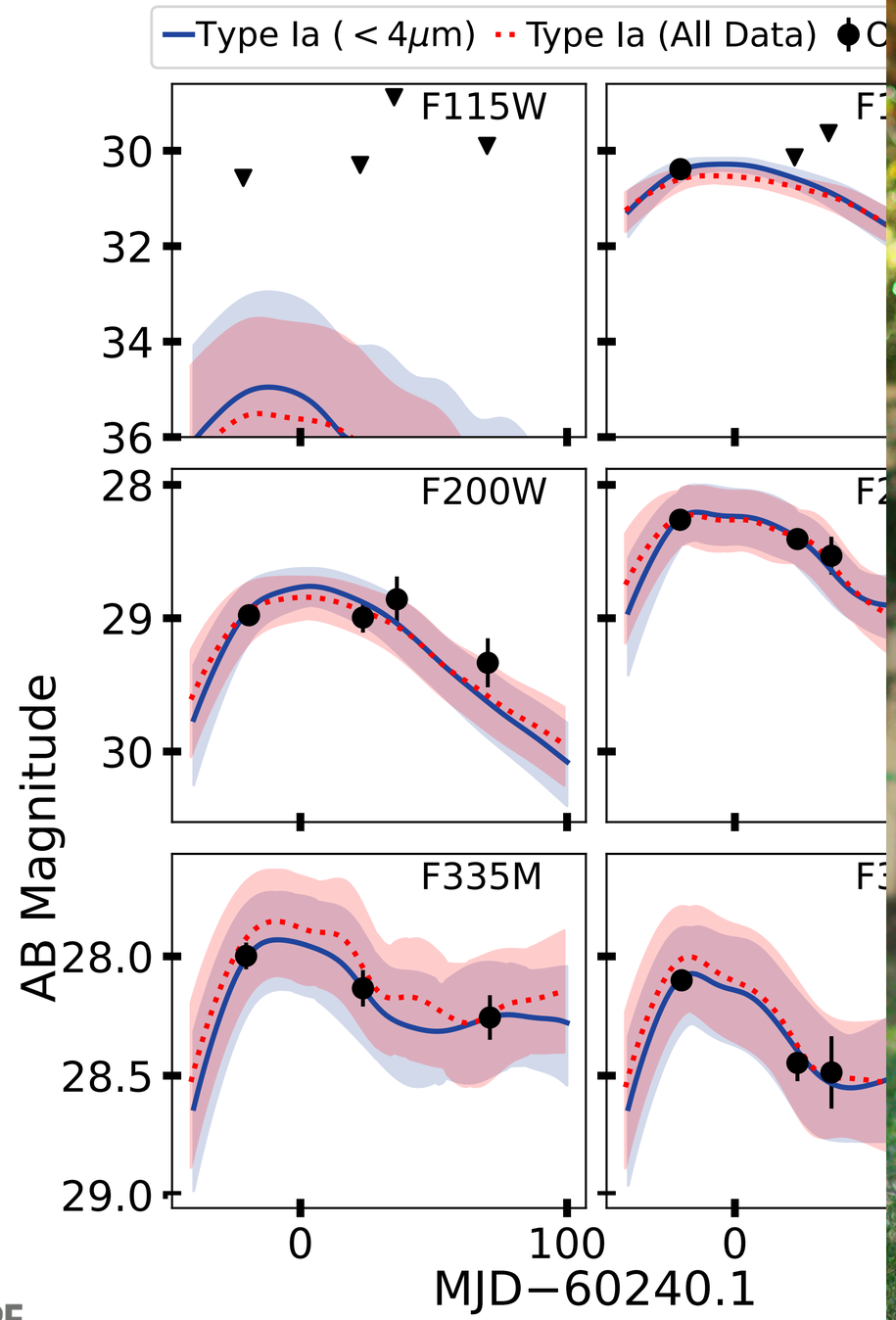
z=2.9!

Pierel+24



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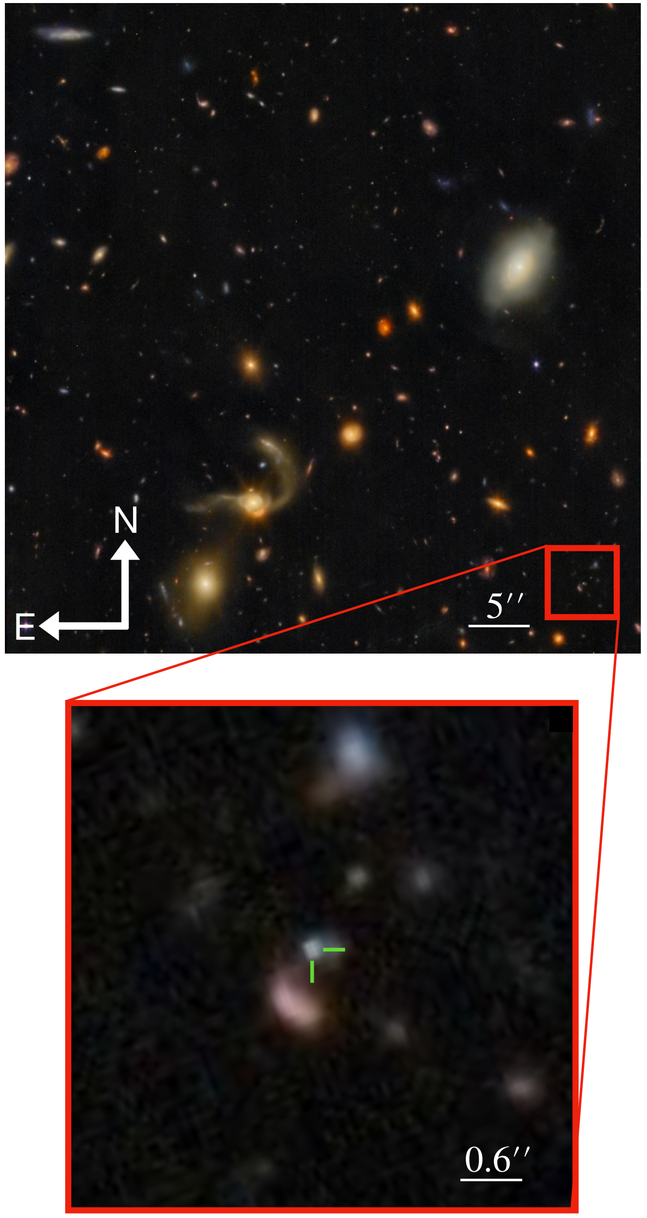
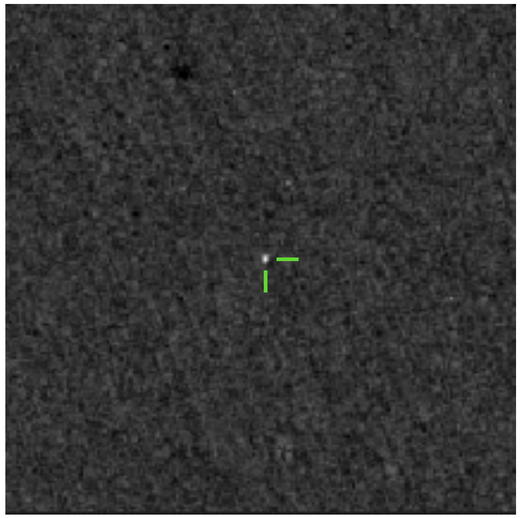


2023-2022 F115W



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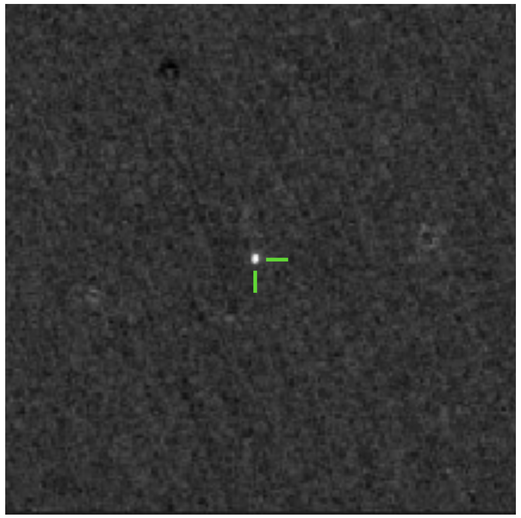

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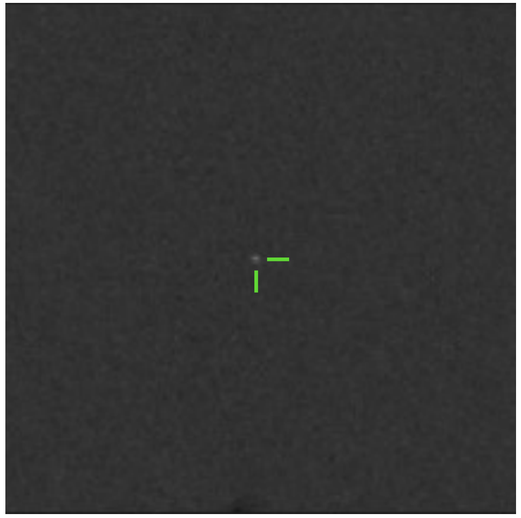

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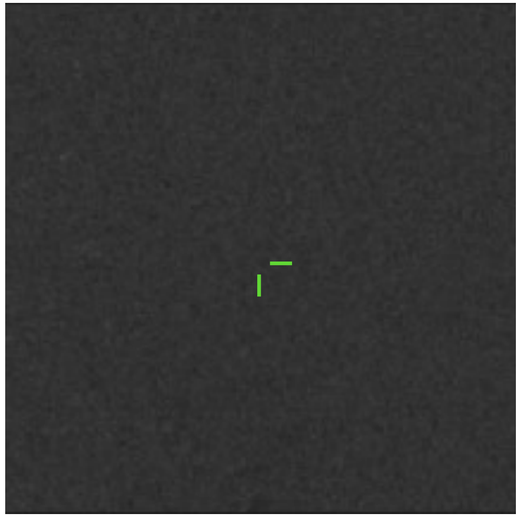

COSMOS

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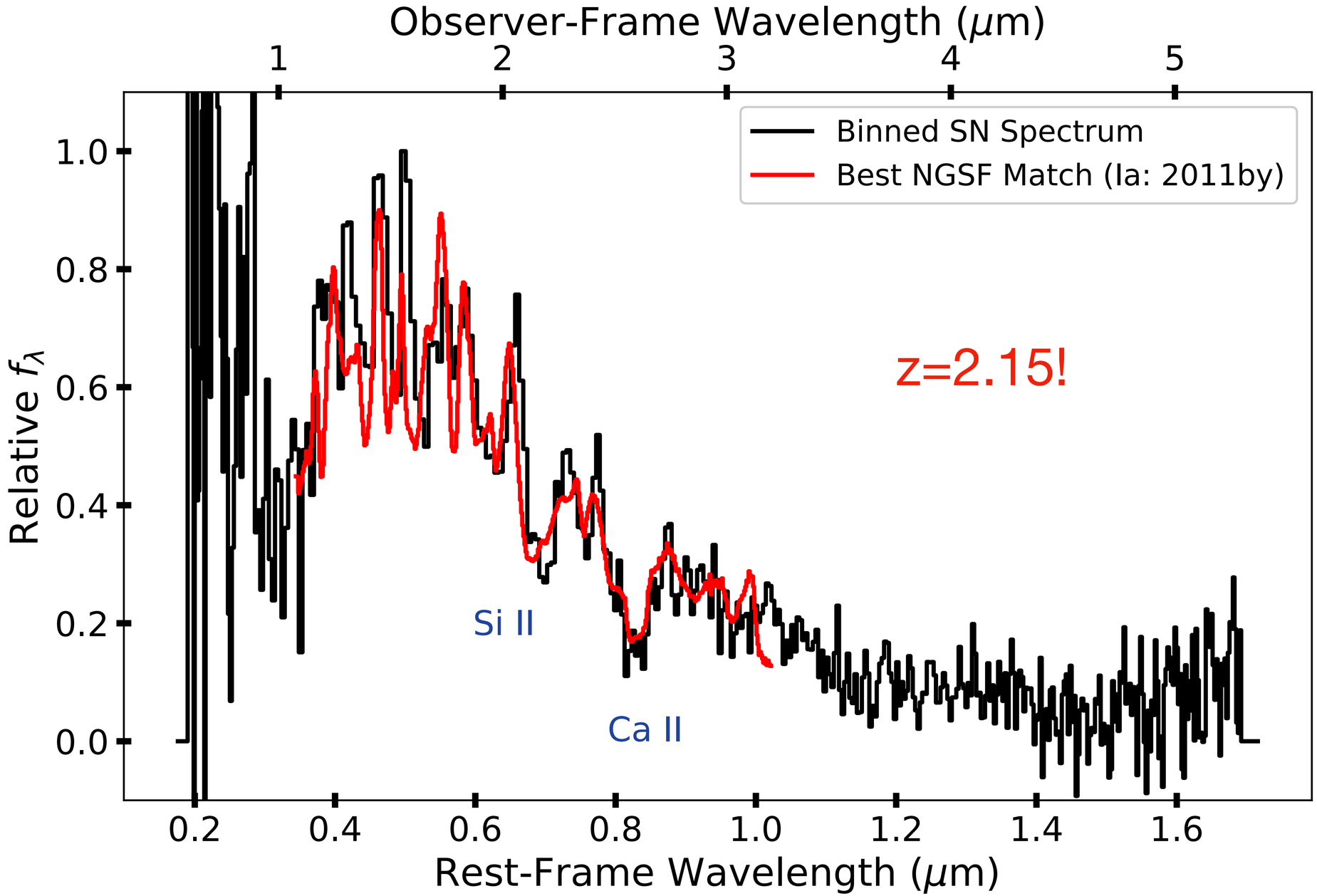

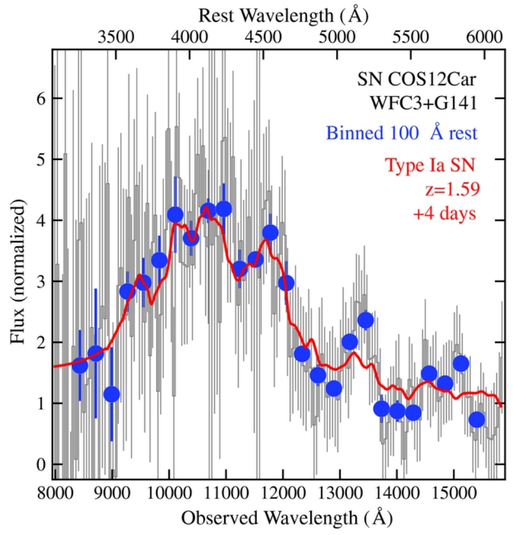

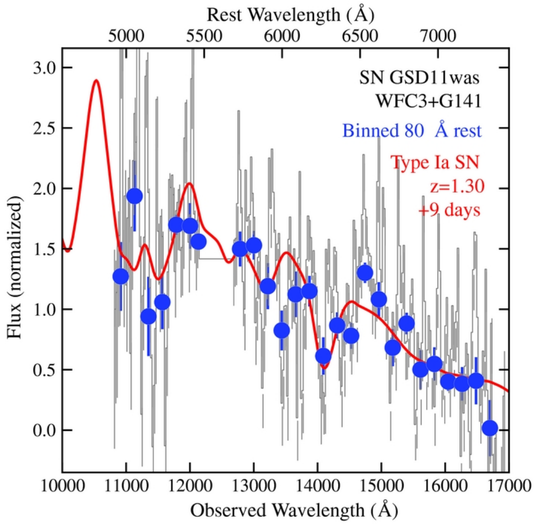

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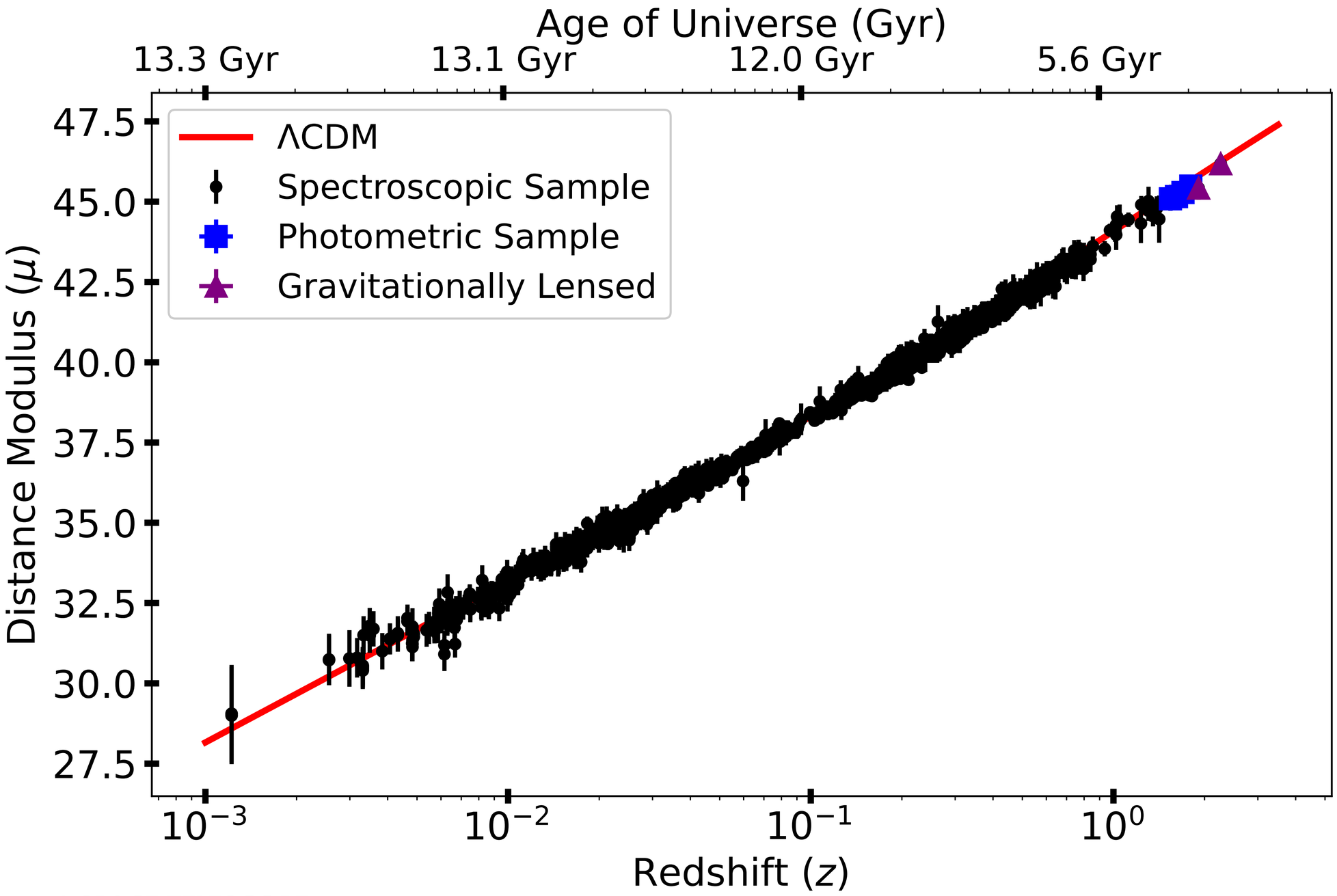

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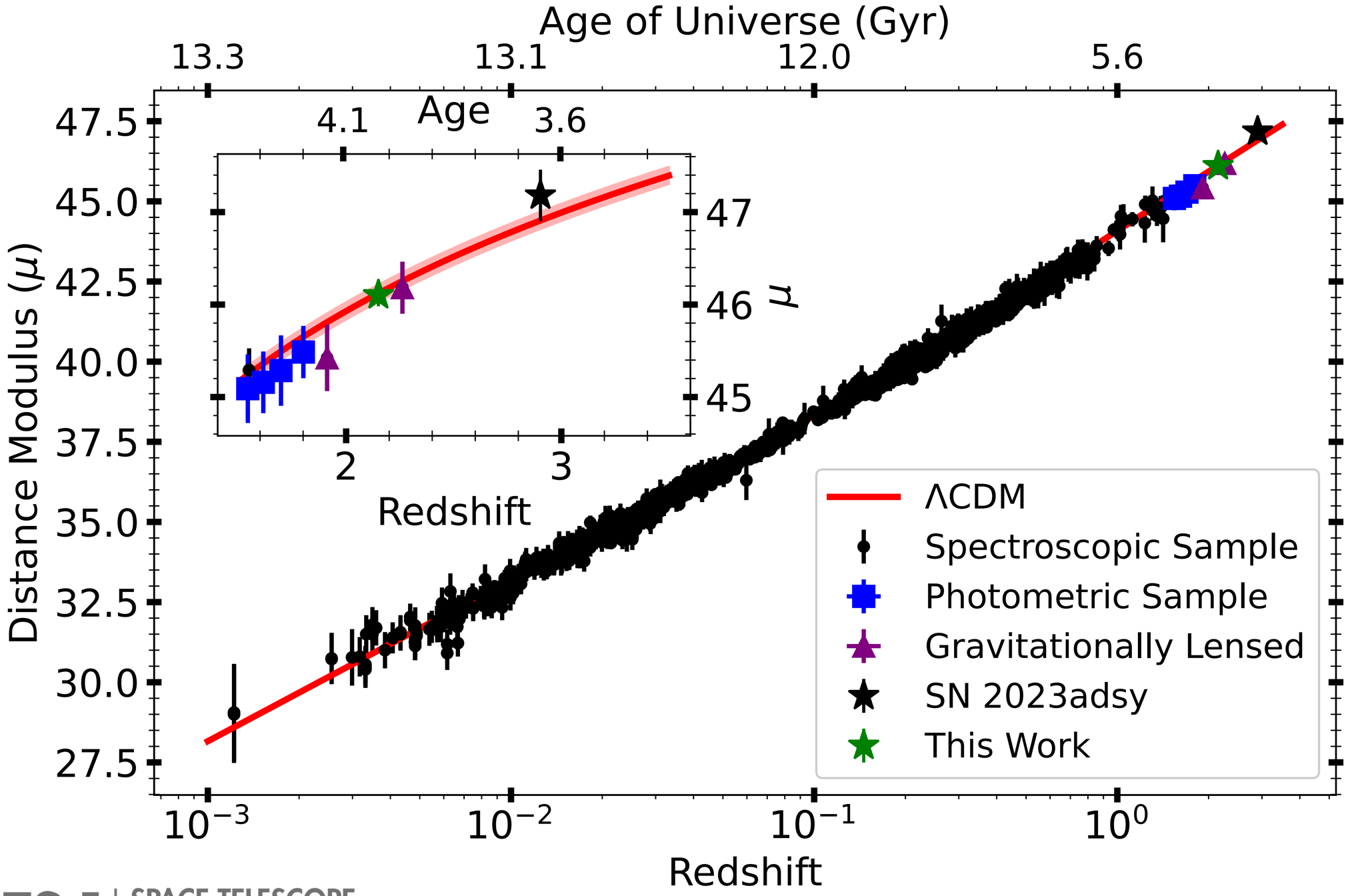

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What else cool?

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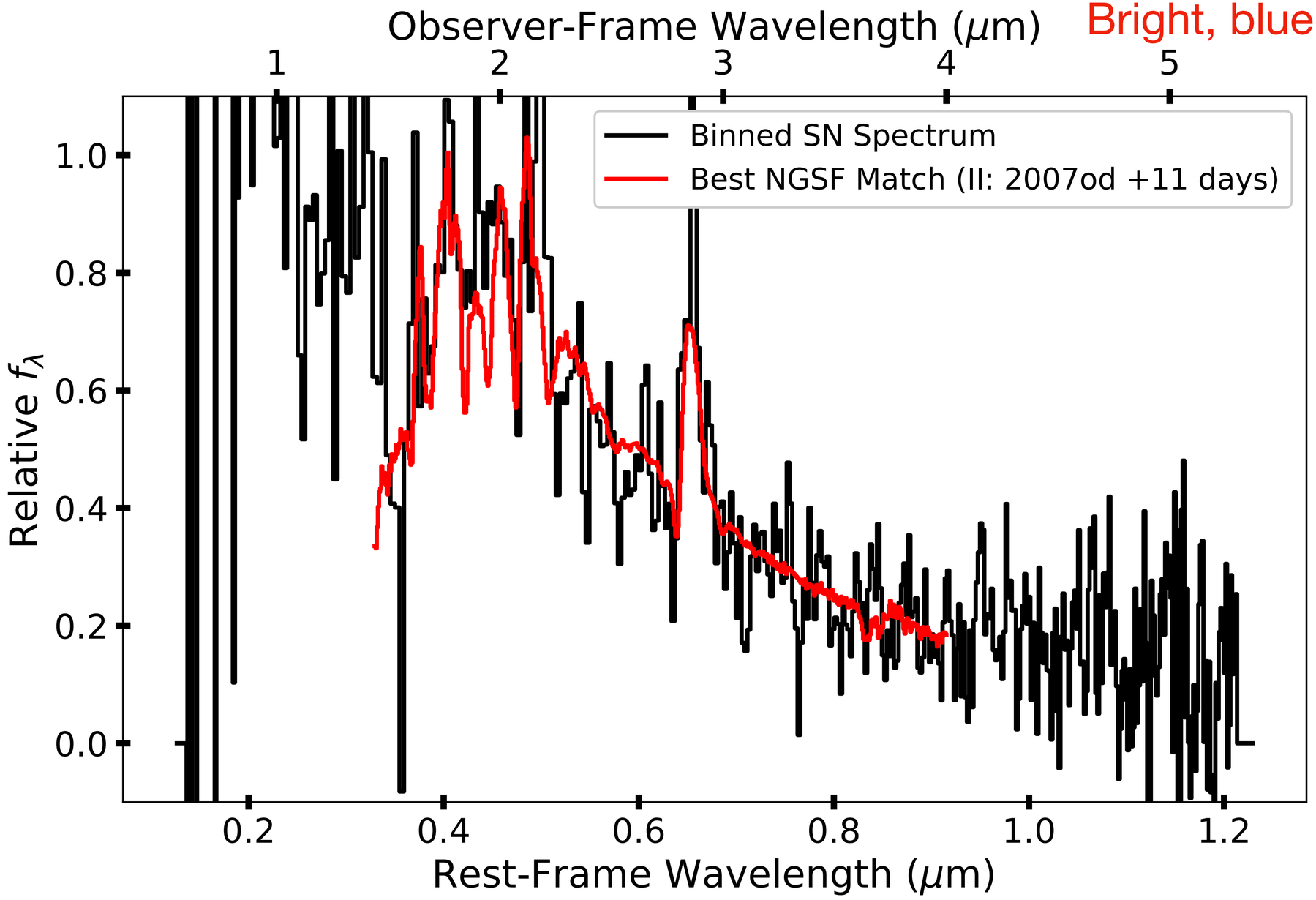
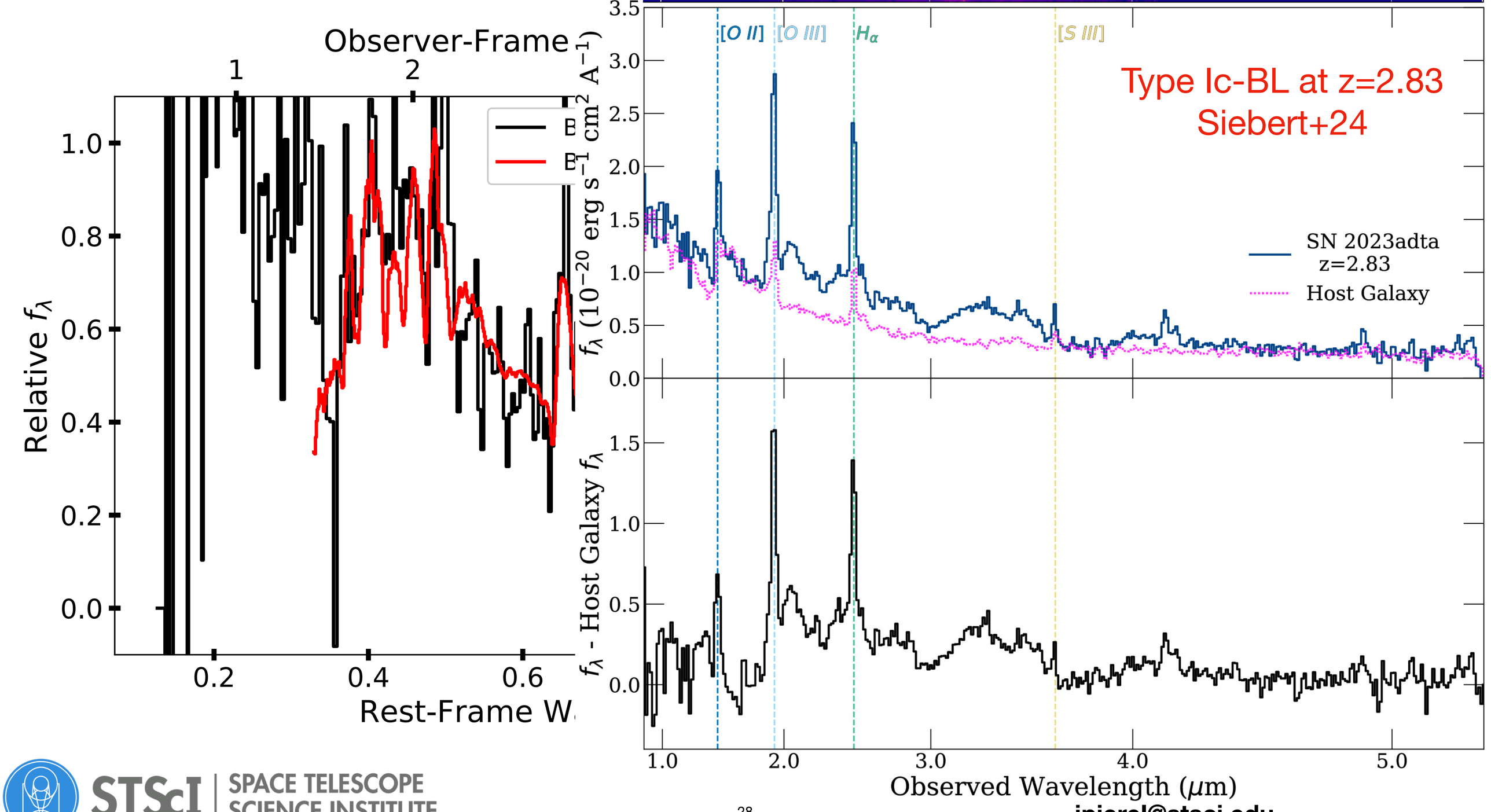
Bright, blue core-collapse SN at z=3.5

Coulter et al., in prep.





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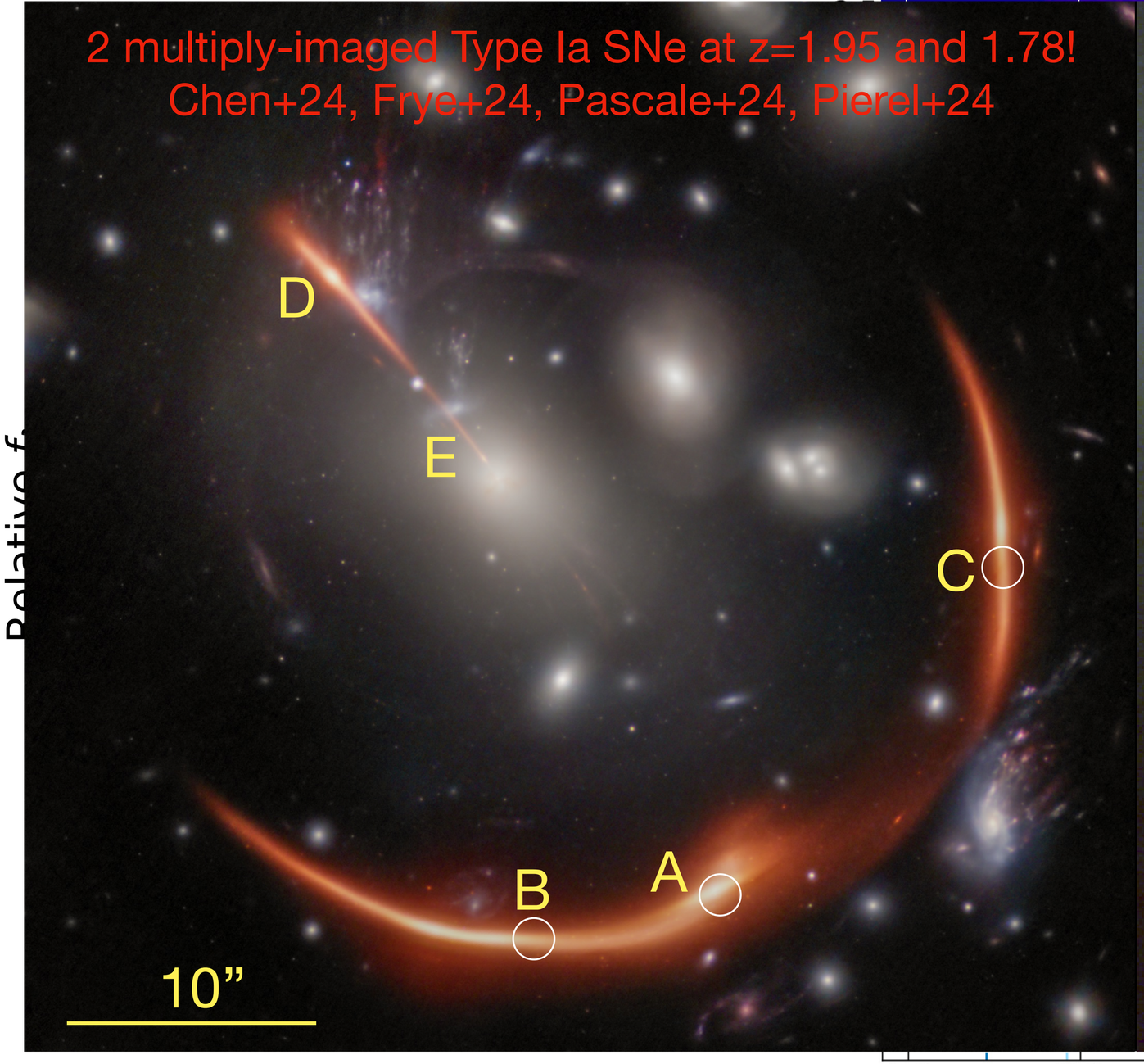
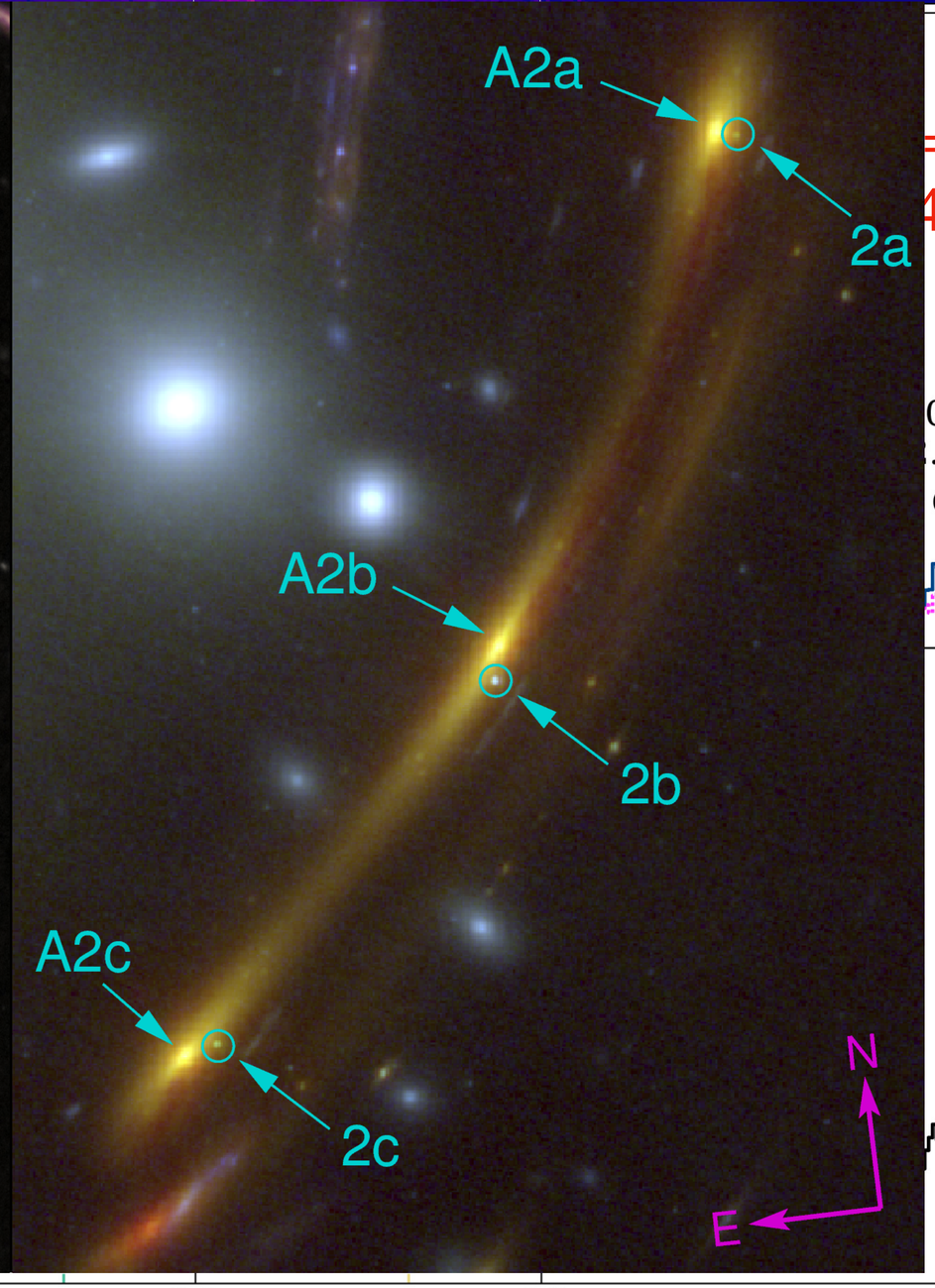
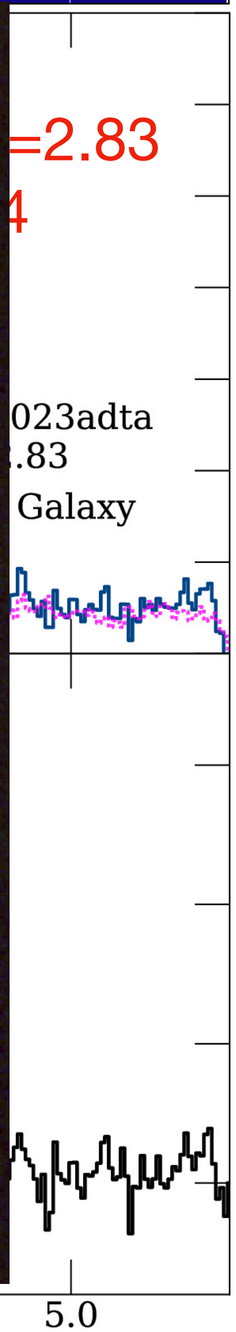
2 multiply-imaged Type Ia SNe at z=1.95 and 1.78!

Chen+24, Frye+24, Pascale+24, Pierel+24







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jpierel@stsci.edu

Summary

jpierel@stsci.edu

Summary

- You might (or might not) care about Type Ia supernova discoveries
- JADES+COSMOS has found the first two spectroscopically confirmed, non-gravitationally lensed, Type Ia supernovae at z>2
- No initial evidence for luminosity evolution
- Larger sample coming in Cycle 3-4
- Lots of other cool stuff found

jpierel@stsci.edu