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X-SHOOTER SPECTROSCOPY OF THE BINARY QUASAR Q0151+048

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Brief History

- First observed by Burbidge (1968)

- Williams & Weymann (1976) found $z_{abs} > z_{em}$

  0.4Mpc minimum distance between QSO and DLA

- Meylan et al. (1990) found qB for the first time.

- Møller et al. (1998) discussed the pair and detected Lyα emission in trough.

- Fynbo et al. (1999) detected extended Lyα emission using NB imaging.

Q0151+048

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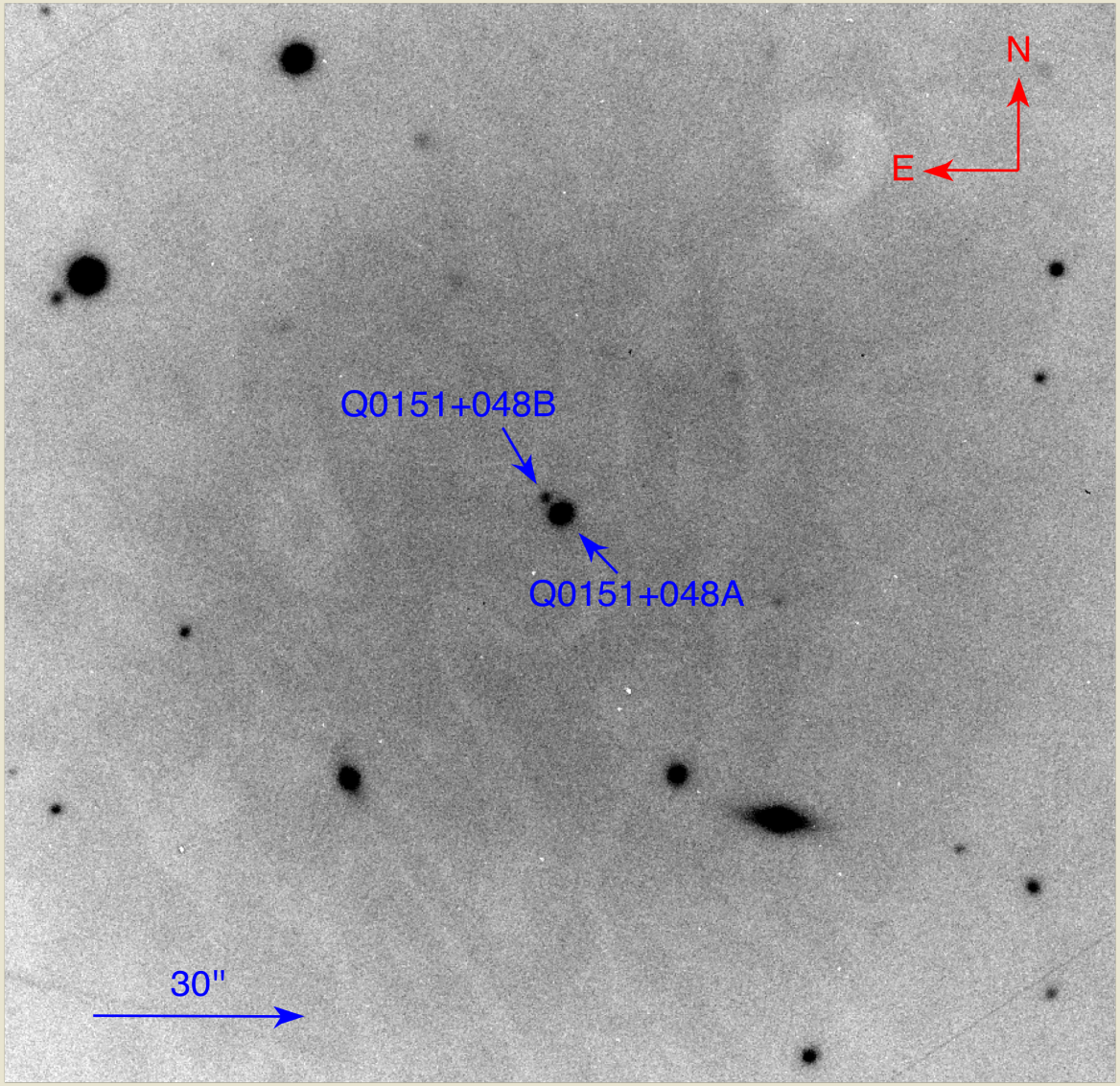
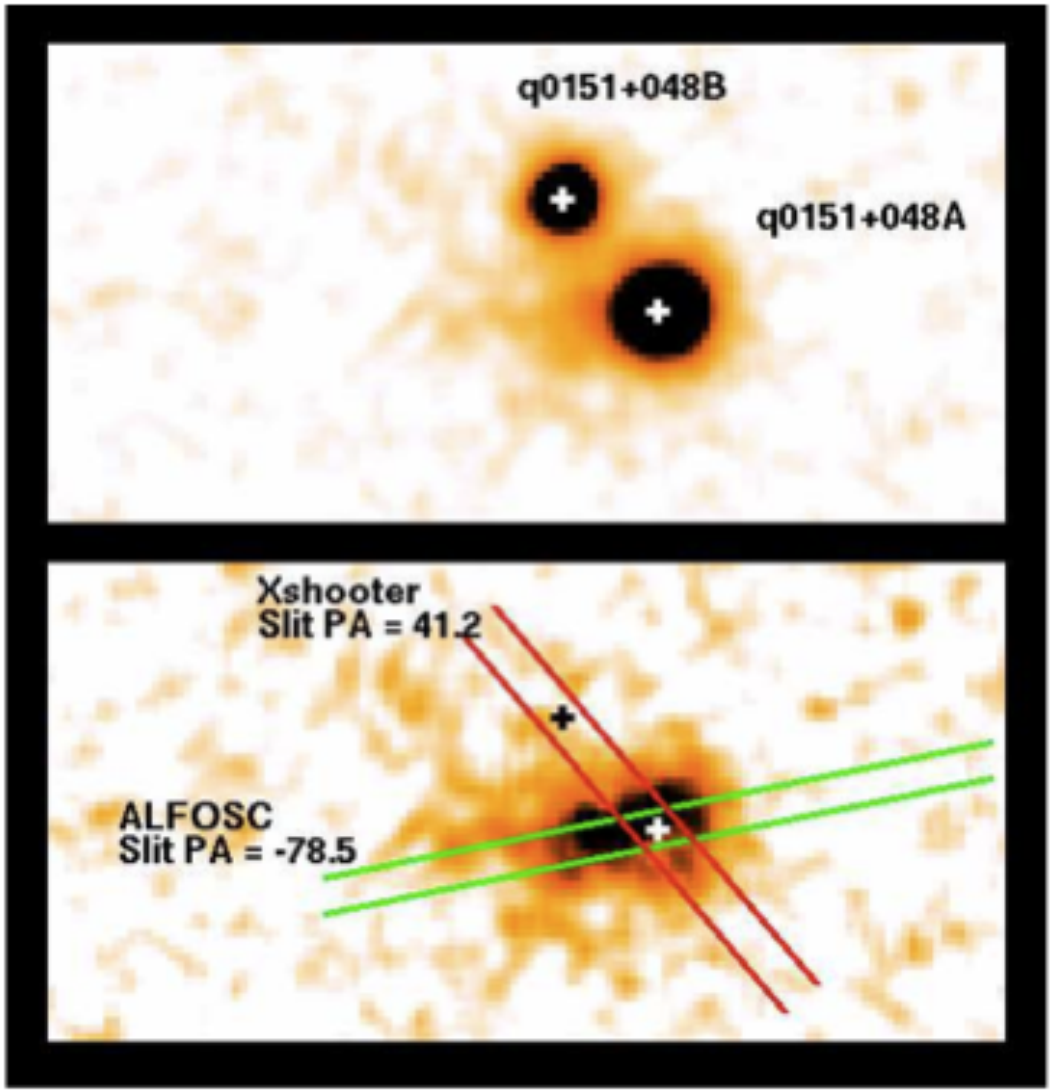


Observations with NOT and X-shooter

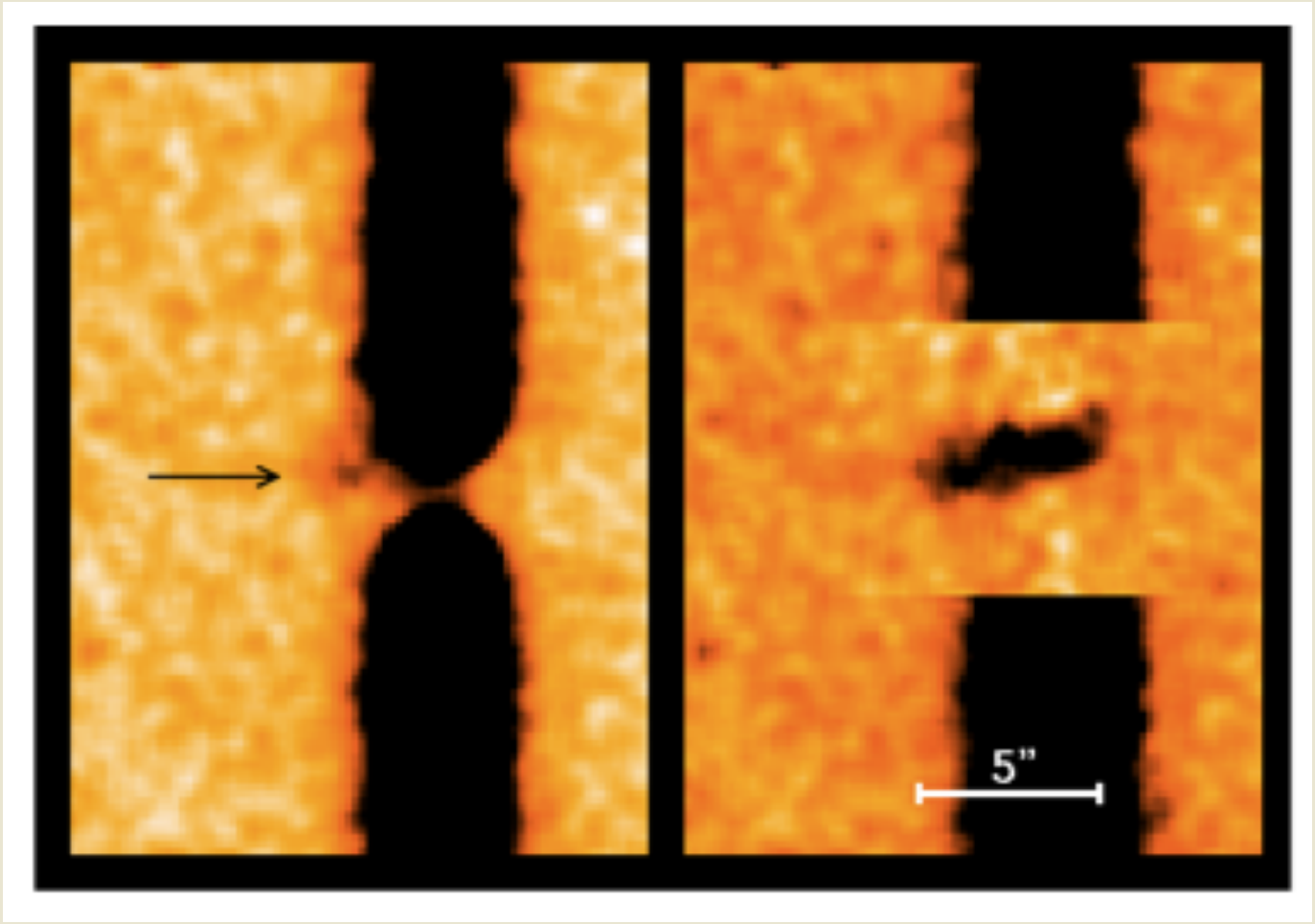
NOT: September 1997
9.2 hrs

X-shooter: November 2008
(UVB, VIS)
1 hr

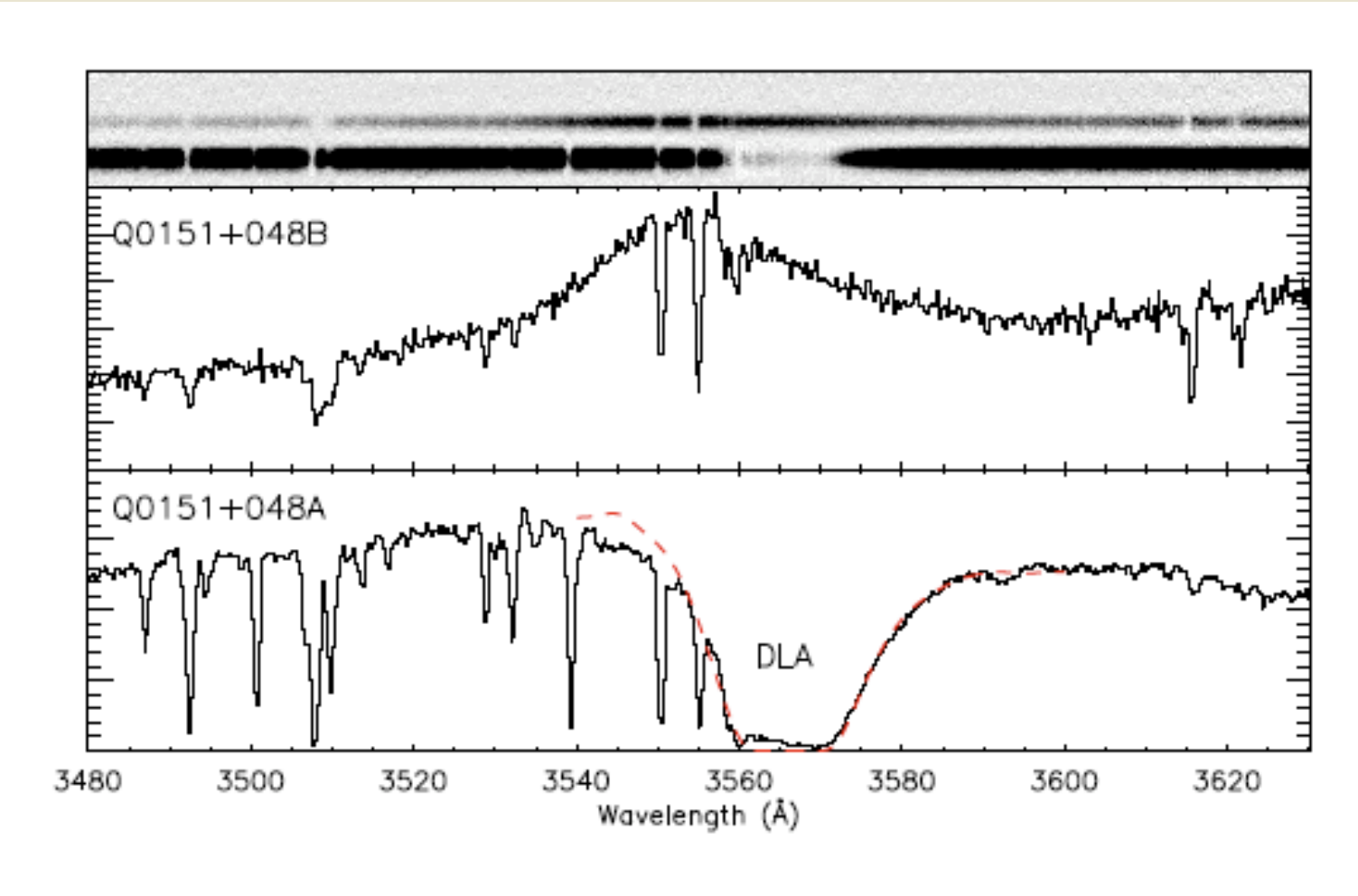
X-shooter: September 2009
(UVB, VIS 960s)
(NIR 480s)



Extended Lyman alpha emission



X-shooter spectra of the QSOs



log NHI = 20.34

Systemic redshifts of the QSOs

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Hα Hβ

Systemic redshift of z(A)=1.92924 and z(B)=1.92863 from Hβ and Hα emission lines

Infalling velocity ~ 240~~0~~km/s ~ 550km/s

Absorption line analysis

$Z = 0.01 Z_{\odot}$

b =18.8 km/s

z = 1.93446

13 CIV systems

UVB-arm spectra

Cloudy Modeling

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Minimum distance between DLA and the qA

~~0.4 Mpc~~

190 kpc

*Analysis done by Cedric Ledoux

Conclusions

- The Lyα blob is associated with the qA host galaxy.

- The DLA is placed along our line of sight towards qA but behind qB.

- The X-shooter spectral analysis enabled us to get:
  (i) geometry of the system
  (ii) systemic redshifts
  (iii) metallicity of the DLA

THANKS