The impact of Stellar feedback from velocity-dependent ionised gas maps.
- A MUSE view of Haro 11

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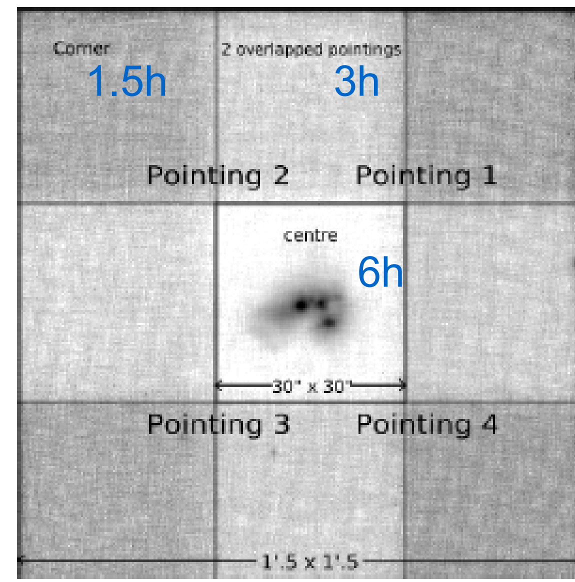
Starburst luminous blue compact galaxy...
-Prototype of L-a emitters...
-One of few galaxies where Lyman continuum has been detected (Bergvall et al. 2006; Leitet et al. 2011).
- Post-merging

→ Ostlin+15: “Kinematics of Haro 11: The miniature Antennae”

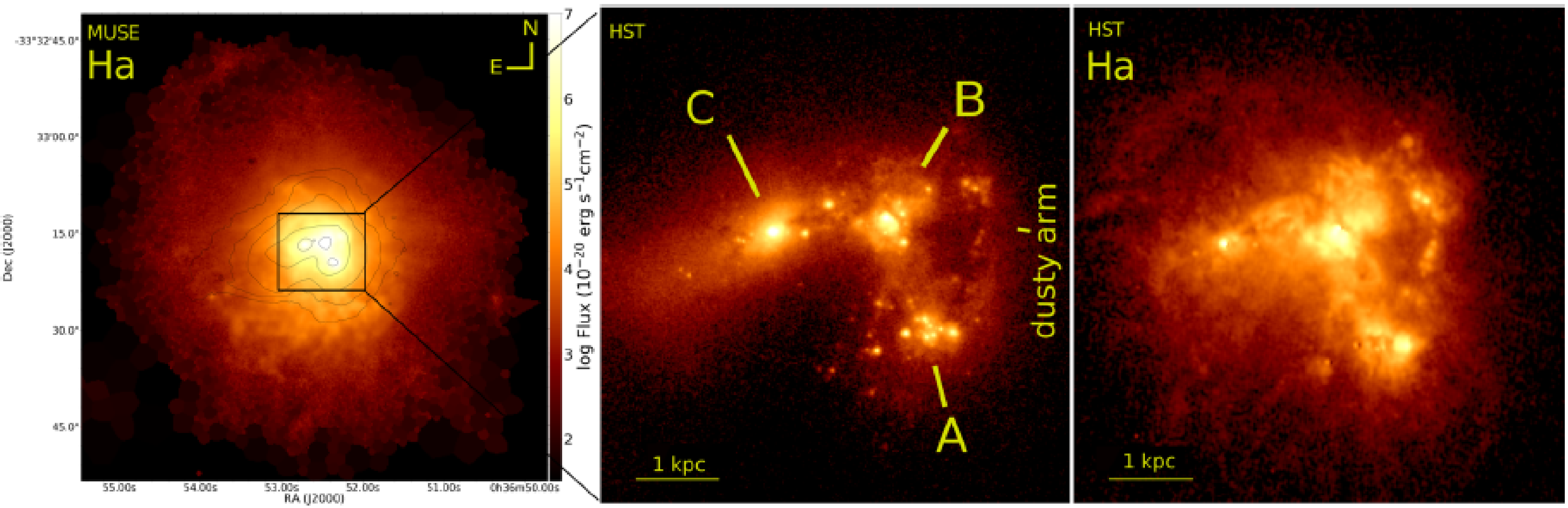
Застали галактику в моментт наиболее мощного воздействия вспышки ЗО на окружающий газ:

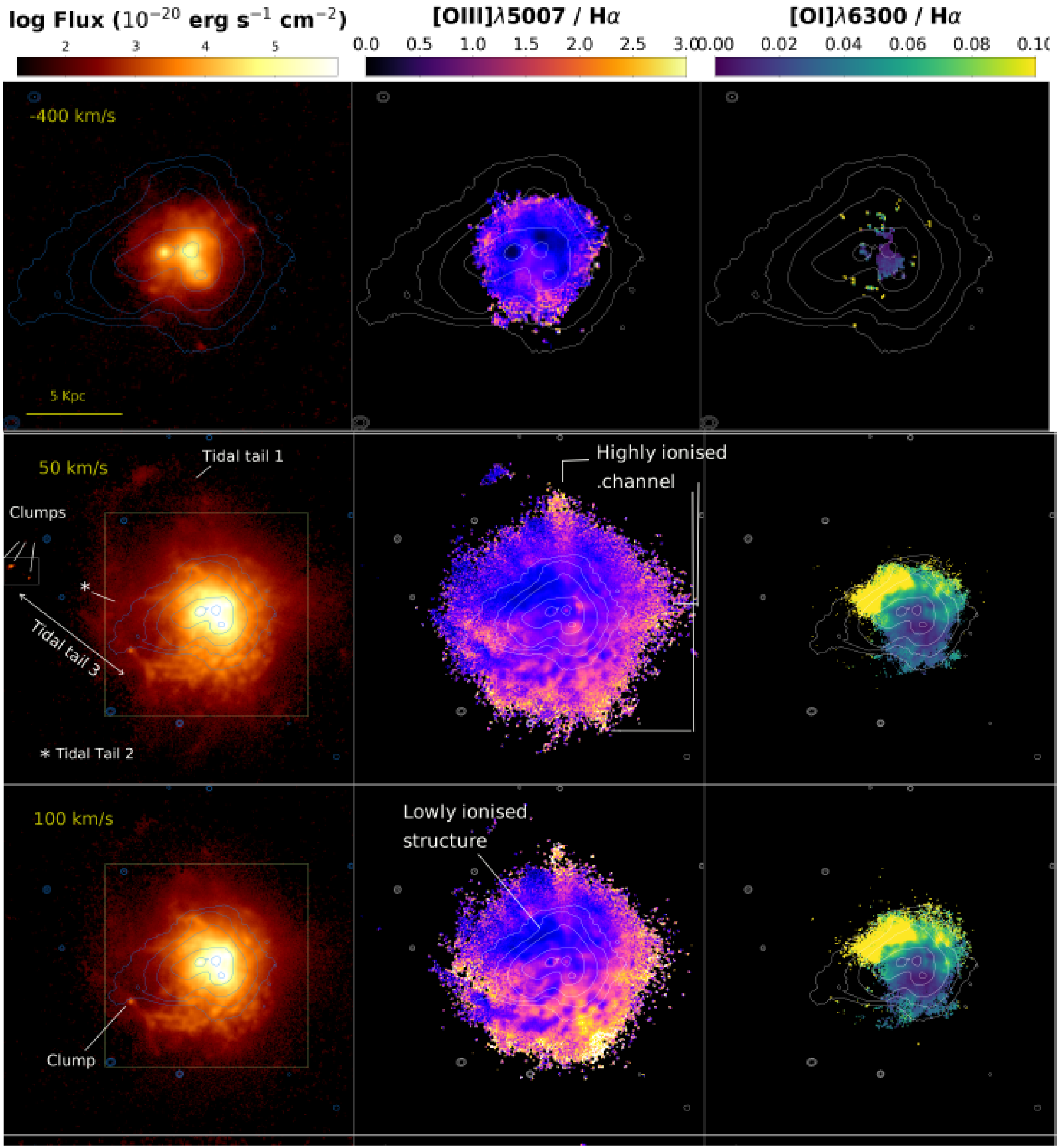
around 200 clusters with masses ranging from 10^4 to $\sim 10^7$ $M_\odot$. Most of them (90%) were formed in the current starburst that started 40 Myr ago (Adamo et al. 2010; Östlin et al. 2001). In half of them, supernova explosions may have recently started, since they were formed at the peak of the cluster formation, around 3.5 Myr ago. Thus, we are capturing Haro 11 at a time when the radiative and mechanical energy released by its massive stellar population is at its maximum. Beside the stellar components, Prestwich et al.

400 pc/"
MUSE:



MUSE (ionized gas halo) HST R HST Ha

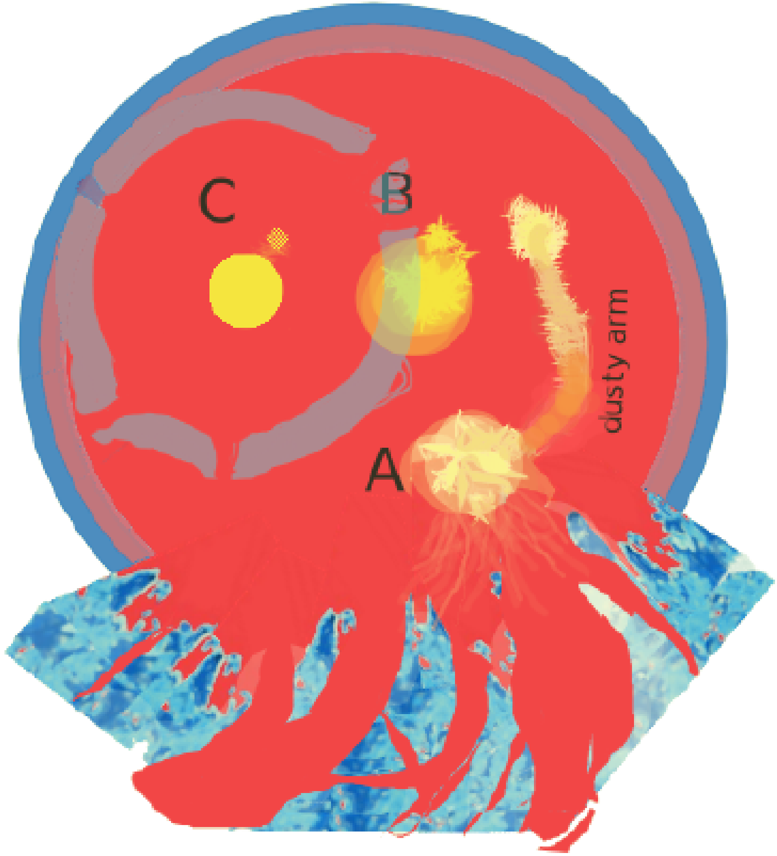


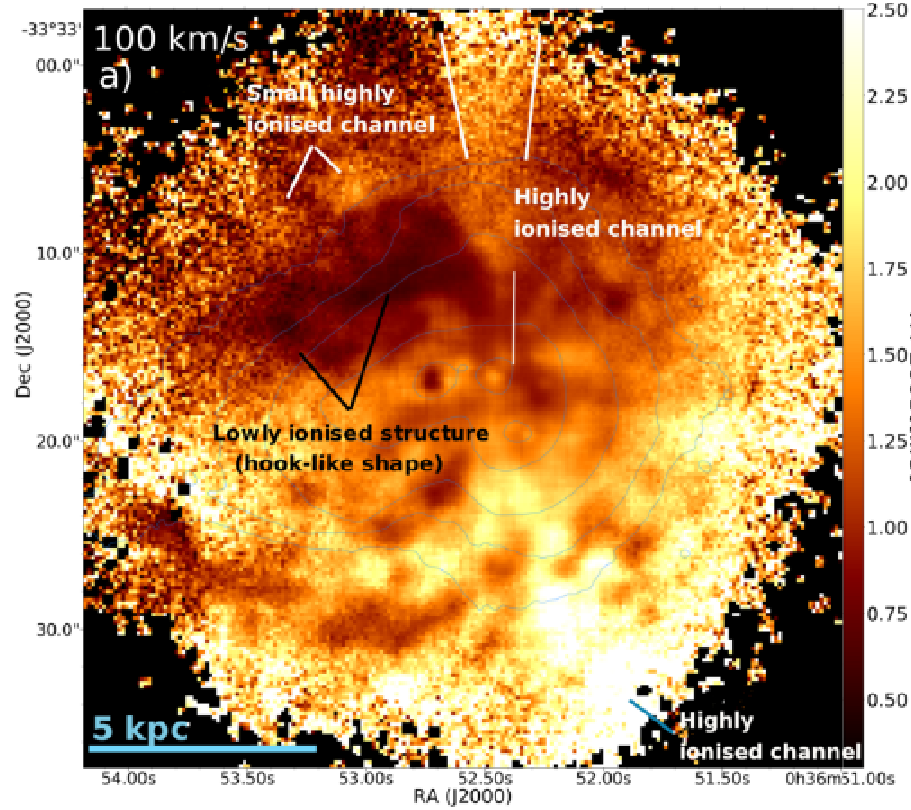


Интересный метод – поканальные карты отношения линий (Velocity sliced ionisation maps)

НО то, что спектров не показано в статье вообще – не есть хорошо и сбивает с толку

+/-400 km/s, так как в большем диапазоне крылья На пересекаются с [NII]





1)The main superbubble r~3.5 kpc, t~15 Myrs (из общих соображений, так как начал уже прорываться снизу.

Аналогии и отличия от M82:

- similar escape velocities, superbubble breakout with V>Vesc
- диск в M82, резкий градиент вертикальной плотности приводит к ускорению пузыря и его большей фрагментации

2) The second bubble around Knot C, r~1.7 kpc (on excitation maps V=-300 km/s)

Оценка скорости расширения – по высокоскоростной [OIII]
Но без анализа профиля линии звучит не очень убедительно

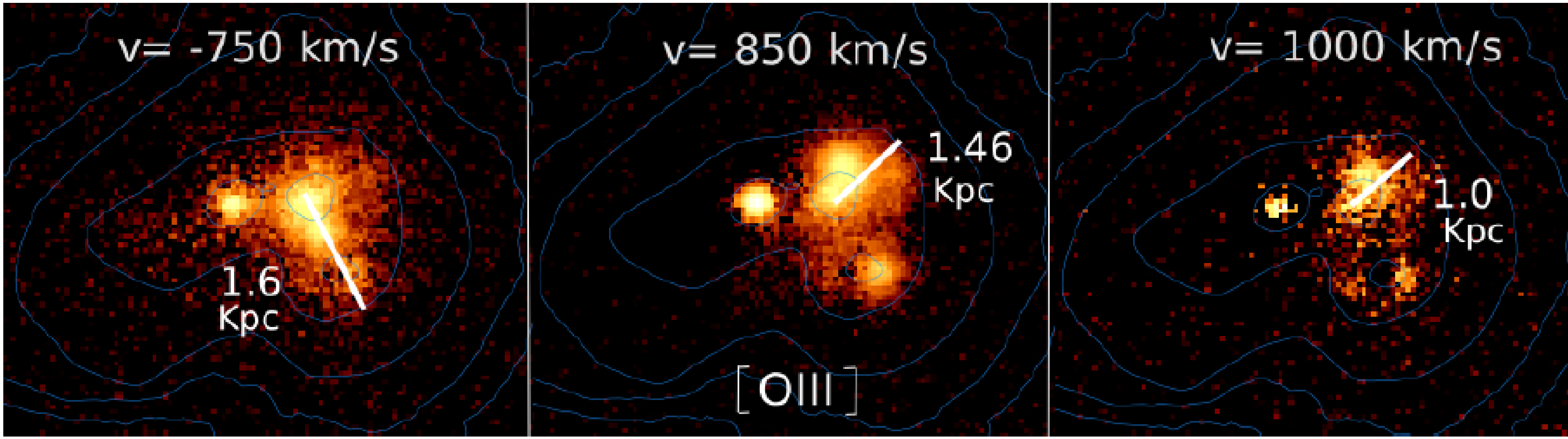
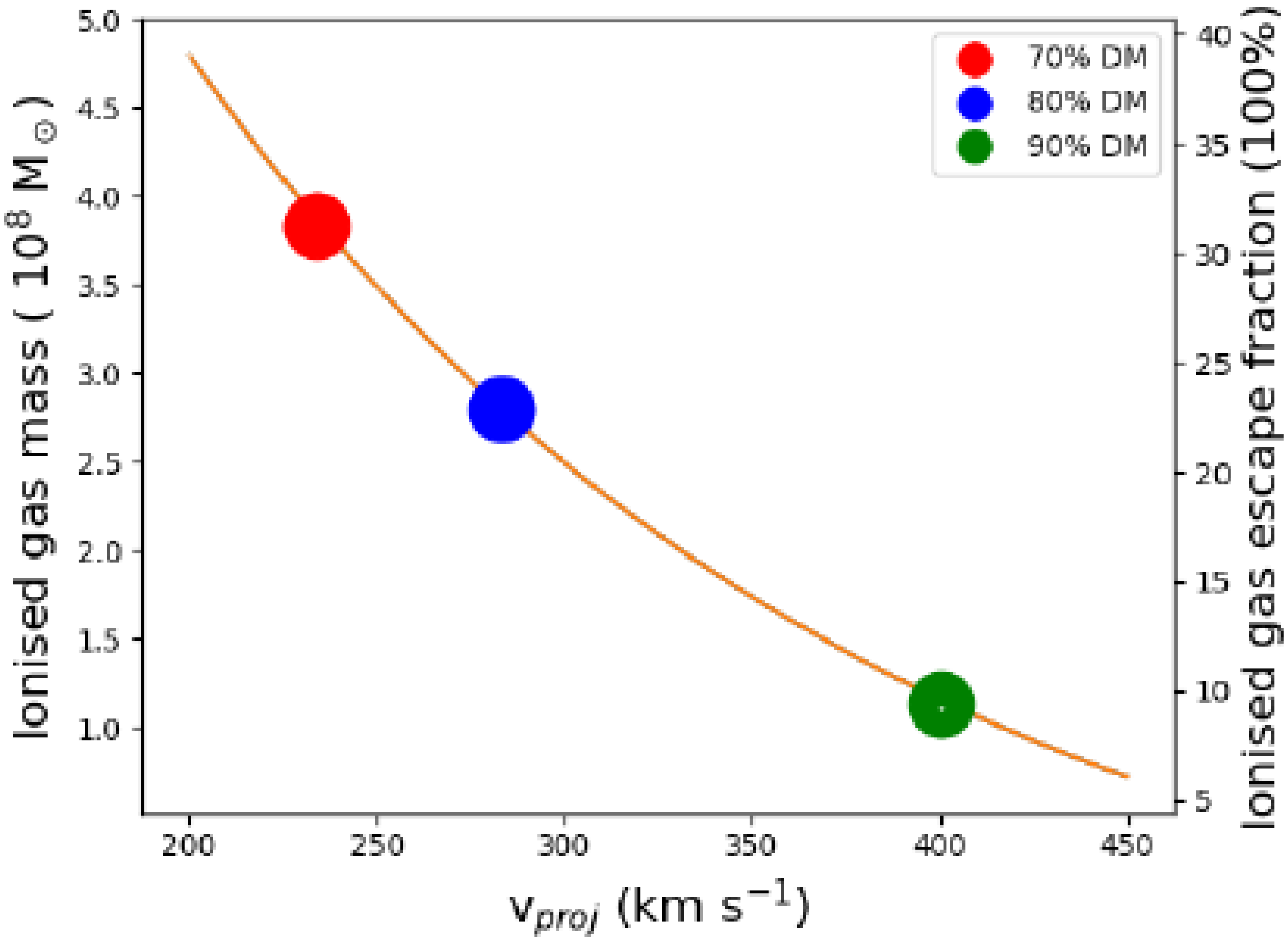


Figure 7. [OIII]λ5007 emission gas seen at velocities -750, 850 and 100 km s^{-1} respectively. The white lines mark the size in kpc of the emitting regions. These are used to calculate the escape velocity of the outflowing gas. Knot B appears to be the main driver of fast

	70% DM			80% DM			90% DM		
	($\alpha_{incl}=10$)	($\alpha_{incl}=45$)	($\alpha_{incl}=80$)	($\alpha_{incl}=10$)	($\alpha_{incl}=45$)	($\alpha_{incl}=80$)	($\alpha_{incl}=10$)	($\alpha_{incl}=45$)	($\alpha_{incl}=80$)
$\mathbf{v}_{esc}$	238 ±6	327 ±6	345 ±2	291 ±12	401 ±14	422 ±19	412 ±7	567 ±9	597 ±11
$\mathbf{v}_{proj}$	234 ±6	231 ±6	59 ±0	287 ±12	283 ±10	73 ±3	406 ±7	401 ±7	103 ±2

Та фракция ионизованного газа, которая прорывается в гало и навсегда уходит



SPATIALLY RESOLVED OUTFLOWS IN A SEYFERT GALAXY AT Z = 2.39

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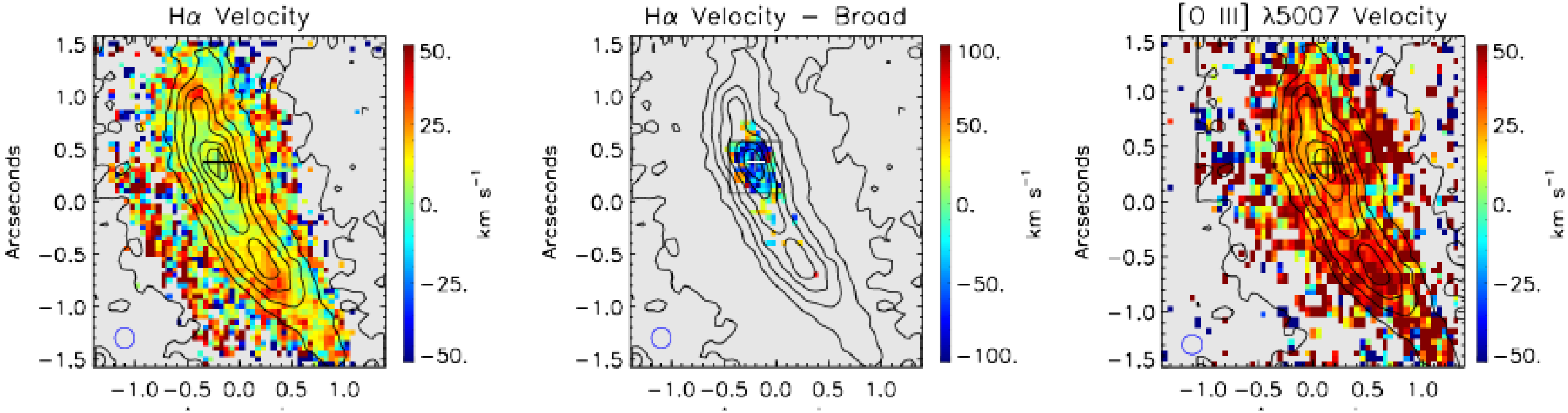
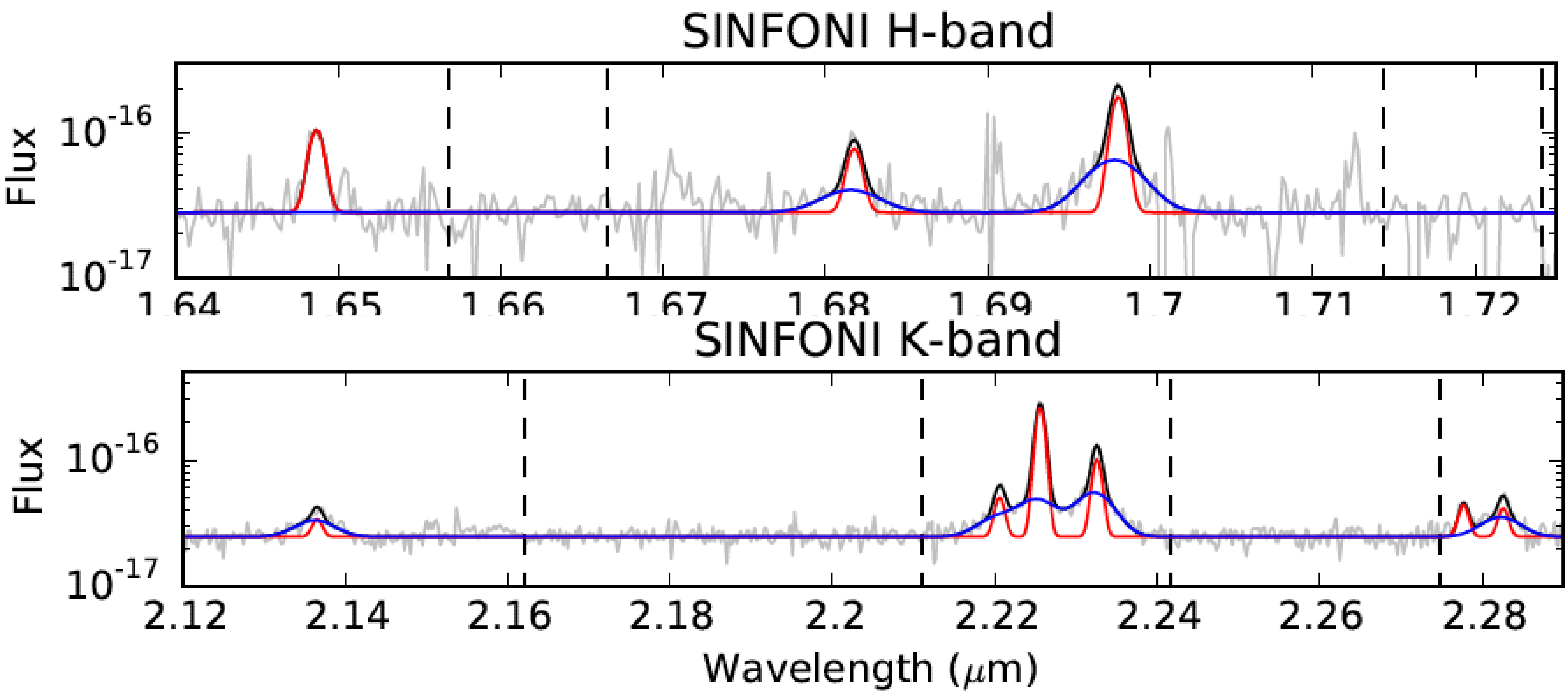
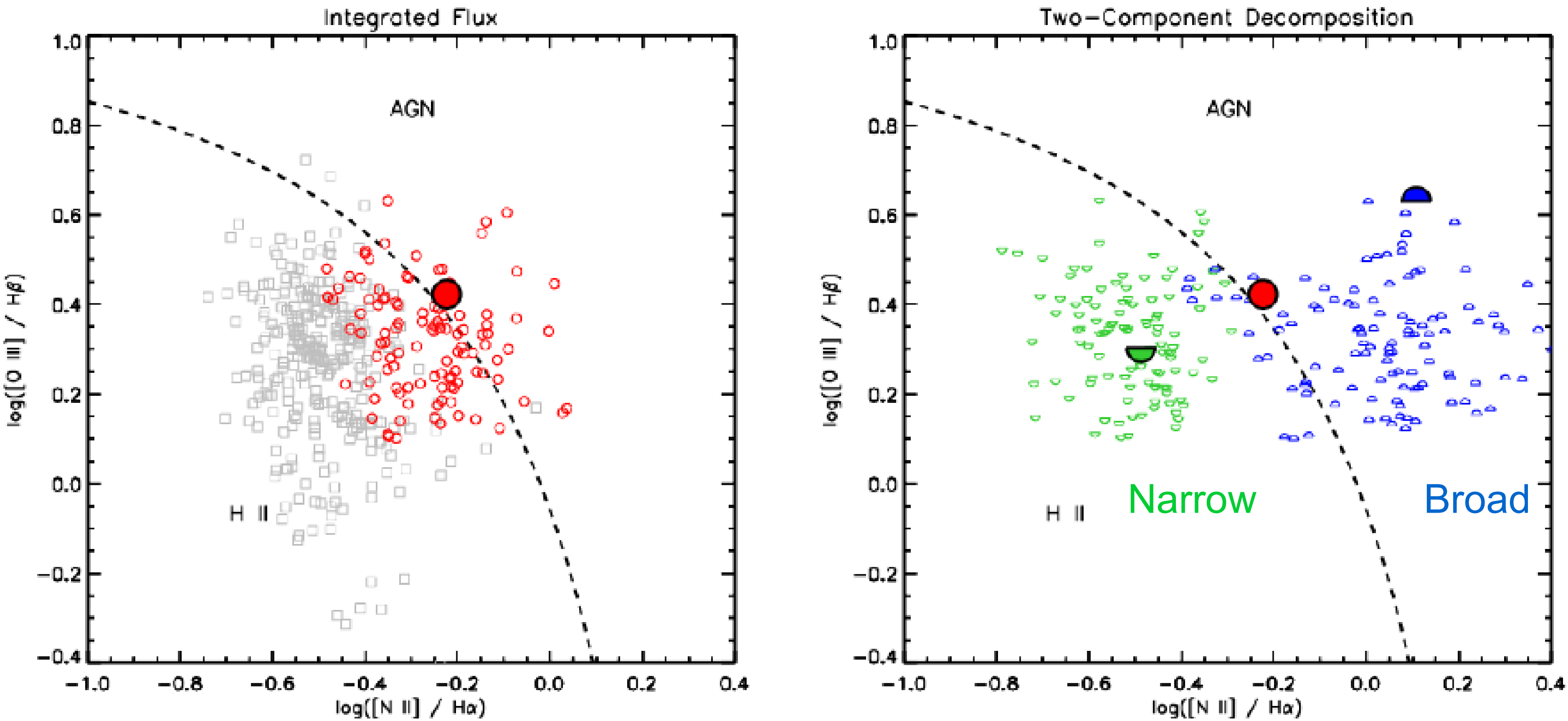
SGAS 0033+02 as a candidate lensed in Sloan Giant Arcs Survey
2012/2013 – confirmed images/spectra 2.5m NOT
2016 – HST images (L-alpha in F410M)
2015 – MagE spectra Magellan Baade, 7 hrs

SINFONI+AO, [OIII]-[SII], ~0.3''
MUSE – 12*700 sec,







Integrated Flux
AGN
H II
log([O III] / Hβ)
log([N II] / Hα)
Two-Component Decomposition
AGN
H II
Narrow
Broad
log([O III] / Hβ)
log([N II] / Hα)

Реконструкция изображения

Главный вывод – истечение
Из Sy2, мало что затрагивает в галактике

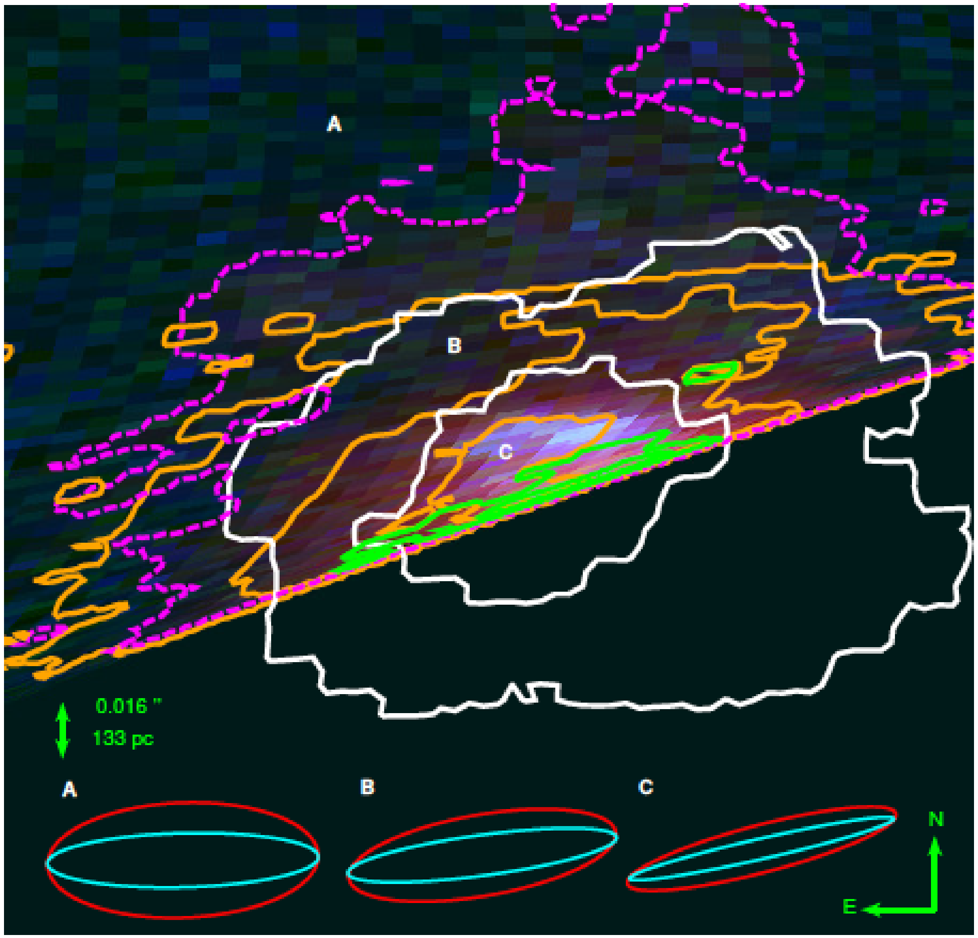


Figure 7. Source plane reconstruction of *HST* F140W/F814W/F555W WFC3 imaging for the northern half of the main arc. Overplotted orange and green contours represent reconstructed narrow- and broad-component Hα fluxes

6. CONCLUSIONS

We have analyzed spatially-resolved, rest-frame UV / optical imaging and spectroscopy of a Seyfert AGN at z $\sim$ 2 for the first time. Our major findings are:

1) AGN-ionized outflows extend to a radius of r $\sim$ 100 pc. We calculate a mass outflow rate over this distance of $\dot{M} = 0.55\ M_\odot\ yr^{-1}$. The corresponding ratio of outflow power to bolometric luminosity is exceedingly low, $\log(\dot{E}/L_{bol})$ = -3.76, suggesting the AGN does not significantly impact the host galaxy.

2) SGAS 0033+02 also exhibits a star formation rate on the order of tens of solar masses per year, which greatly exceeds the AGN mass outflow rate. As such, the current state of the AGN in SGAS 0033+02 would be unlikely to quench star-formation within the galaxy.

3) The positions of outflowing winds and Lyα emission are anti-correlated. Lyα exists where the outflow is not, therefore the outflow has not destroyed Lyα over the whole arc. Lyα structure in this galaxy is also similar to those in galaxies not hosting AGN.

4) SGAS 0033+02 resembles weak AGN with strong star formation observed in the local universe. Faint emission-line signatures of these low-luminosity AGN make their detection at z$\sim$2 extremely difficult without gravitational lensing. Combining faint AGN emission with line-dilution from strong star formation, it is possible that many AGN are missed in survey work at this redshift.