News from the MUSE

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CRAL

PNCG
Lyon, Nov 17 2017
MUSE Talks

- Probing the cold circum-galactic gas around individual high-redshift galaxies with MUSE - Floriane Leclercq
- Spectral features of different ionizing sources within galaxies - Anna Feltre
- Galaxy mass assembly in various environments - Benoît Epinat
- Resolving Metallicity Gradients of intermediate redshift galaxies with MUSE - David Carton
- Physical properties of low mass MUSE-confirmed galaxies at z>3 in the Frontier Fields - Johanny Martinez
Instrumental news: adaptive optics

Science news: the MUSE Hall of Fame

What’s next?

ETH
MUSE-WFM GROUND LAYER AO MODULE

• Improve Image Quality in 95% of atmospheric conditions
• On a large field of view (1 arcmin)
• With 99% sky coverage
• Without loss of throughput
• In the visible (500-1000 nm)
• Small overhead
• Easy to operate
• Robust (minimum downtime)
2017
Yepun become the first adaptative VLT

-Lyon - Potsdam - Toulouse - Zurich-
Planetary Nebulae
NGC 6563
Non AO
120 s exposure
Airmass 1.3
Dimm 0.9 arcsec

Measured FWHM (Moffat)
1.02 arcsec @ 5100 Å
0.81 arcsec @ 9000 Å
Planetary Nebulae
NGC 6563
*with AO*
120 s exposure
Airmass 1.3
Dimm 0.9 arcsec

Measured FWHM (Moffat)
0.78 arcsec @ 5100 A
0.57 arcsec @ 9000 A
Measured FWHM (Moffat)
1.02 arcsec @ 5100 A
0.81 arcsec @ 9000 A

Gain FWHM
1.3 @ 5100 A
1.4 @ 9000 A

Measured FWHM (Moffat)
0.78 arcsec @ 5100 A
0.57 arcsec @ 9000 A
Instrumental news: adaptive optics

Science news: the MUSE Hall of Fame

What’s next?
### Requested Nights

<table>
<thead>
<tr>
<th></th>
<th>XShooter</th>
<th>MUSE</th>
<th>FORS2</th>
</tr>
</thead>
<tbody>
<tr>
<td>P97</td>
<td>221</td>
<td>220</td>
<td>215</td>
</tr>
<tr>
<td>P98</td>
<td>255</td>
<td>229</td>
<td>231</td>
</tr>
<tr>
<td>P99</td>
<td>188</td>
<td>203</td>
<td>198</td>
</tr>
<tr>
<td>P100</td>
<td>287</td>
<td>266</td>
<td>196</td>
</tr>
<tr>
<td>P101</td>
<td>201</td>
<td>186</td>
<td>177</td>
</tr>
</tbody>
</table>

346 papers, 1416 citations (as of 16/11/2017)
Mapping the inner regions of the polar disk galaxy NGC 4650A with MUSE


GASP collaboration
Ubiquitous Giant Lyα Nebulae around the Brightest Quasars at $z \sim 3.5$ Revealed with MUSE, E. Borosiva et al, 2016, ApJ, 831, 39
Lensing Clusters


500 spectroscopic redshifts
The MUSE Hubble Ultra Deep Field Survey

The deepest spectroscopic survey ever performed, 10 & 30 hours depth, 1600 redshifts
The MUSE Hubble Ultra Deep

72 Lyα without HST counterpart

Pre MUSE
142 spectro-z
AB<25
z<3

In 10 years
x 10 spectro-z
+ 6 magnitudes
+ 4 z bins

MUSE
1443 spectro-z
AB<31
z<7

In 100 hours of VLT
The MUSE Hubble Ultra Deep Field Survey

To appear in A&A 2017, 610, A1 ... A10

I. Survey description, data reduction and source detection, Bacon et al.
II. Spectroscopic redshifts and comparisons to color selections of high-redshift galaxies, Inami et al.
III. Testing photometric redshifts to 30th magnitude, Brinchmann et al.
IV. Global properties of C III] emitters, Maseda et al.
V. Spatially resolved stellar kinematics of galaxies at redshift 0.2<z<0.8, Guerou et al.
VI. The Faint-End of the Lyα Luminosity Function at 2.91 < z < 6.64 and Implications for Reionisation, Drake et al.
VII. FeII* Emission in Star-Forming Galaxies, Finley et al.
VIII. Extended Lyman-alpha haloes around high-redshift star-forming galaxies, Leclercq et al.
IX. Evolution of galaxy merger fraction since z~6, Ventou et al.
X. Lyα Equivalent Widths at 2.9<z<6.6, Hashimoto et al.
Instrumental news: adaptive optics

Science news: the MUSE Hall of Fame

What’s next?
• LTAO diffraction limited
• 7x7 arcsec$^2$, 25 mas sampling
• To be commissioned in 2018
A BLUE MUSE for the VLT

- Blue sensitive: 370-600 nm
  - MUSE 480-930 nm
- Larger Spectral resolution: R~5000
  - MUSE: R=1500 @ 480 nm
- Larger field of view: 2 arcmin$^2$
  - MUSE: 1 arcmin$^2$
- Same throughput: 40% end-to-end
- Science case:
  - Globular clusters
  - PN, diffuse, evolved star nebulae
  - Resolved stellar population and kinematics in nearby galaxies
  - Faint low SB galaxies
  - High redshift galaxy: LBG and LAEs $z=2-4$
  - Diffuse gas emission
  - Lyman continuum leakers