Evolution of galaxy dynamics over the last 10 Gyrs with MUSE/VLT

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Galaxy evolution

Morphology at $z > 0.5$ different from the local Universe.
Kinematics more disturbed.
Why ?

- ▷ Impact of the environment on the kinematics ? On the morphology ? How do they scale with each other ?
- ▷ Which physical processes are shaping galaxies ?
  - · Which is/are dominant ?
  - · How to identify them ?
- ▷ Origin of quenching ?
- ▷ Ancestors of local giant spirals ?

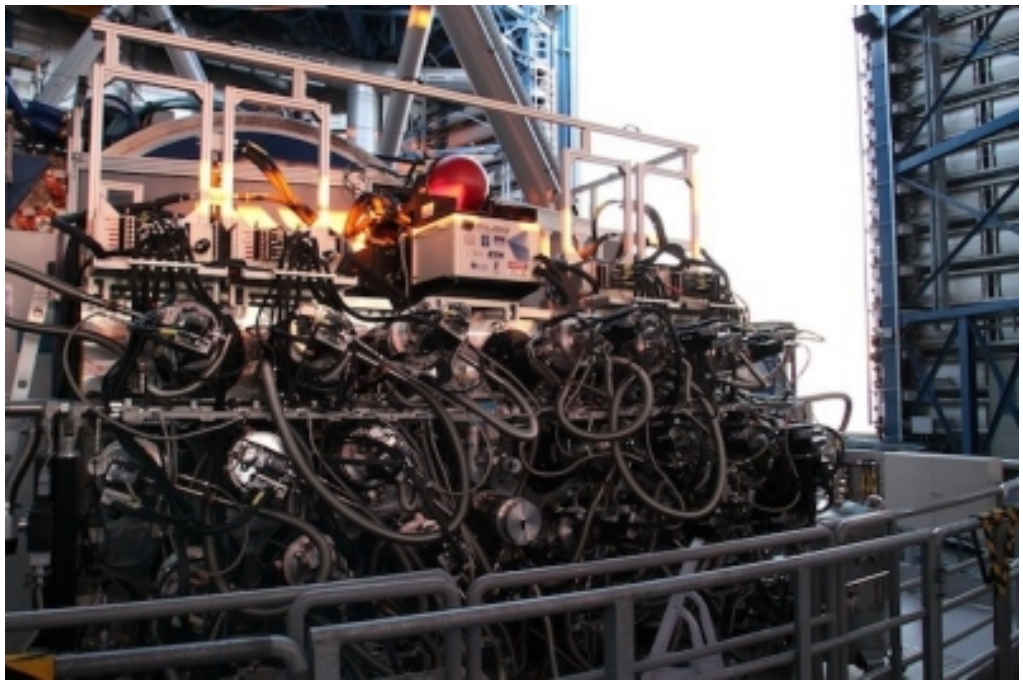
Integral Field Spectroscopy & MUSE

IFS:

- ▷ 3D cubes (2D spatial + 1D spectral)
- ▷ photometry + kinematics

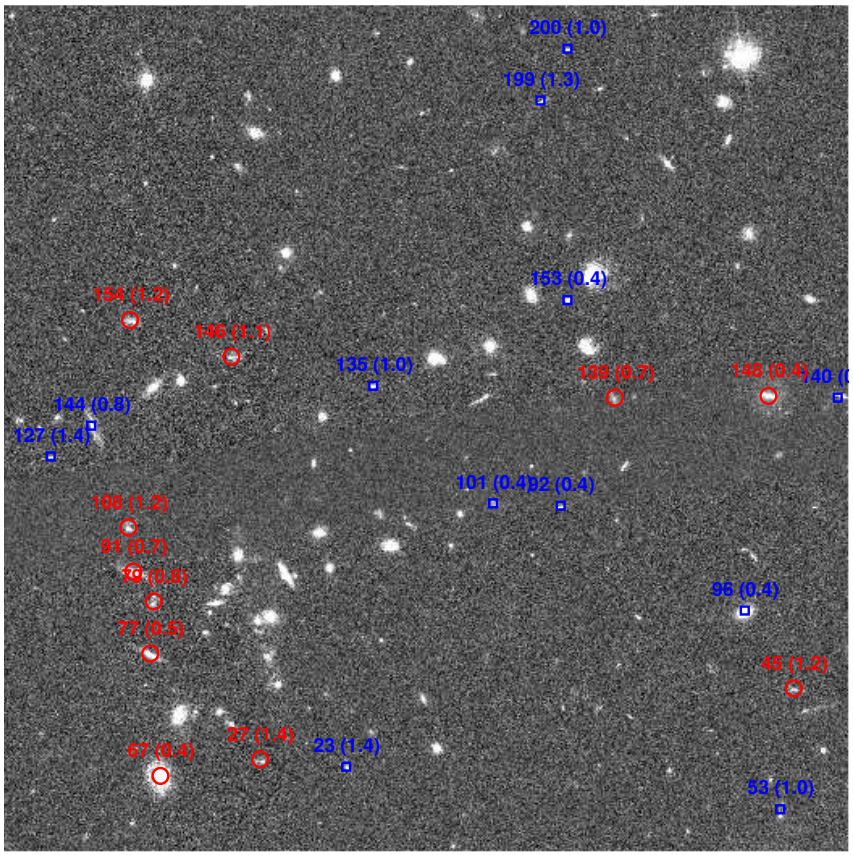
MUSE:

- ▷ $1 \times 1\,\mathrm{arcmin}^2$ FoV
- ▷ 0.2 arcsec spatial sampling
- ▷ spectral range $[4650\,\text{Å}, 9300\,\text{Å}]$
- ▷ seeing or AO observations



MUSE instrument. Credit: Ghaouti Hansali (CRAL)

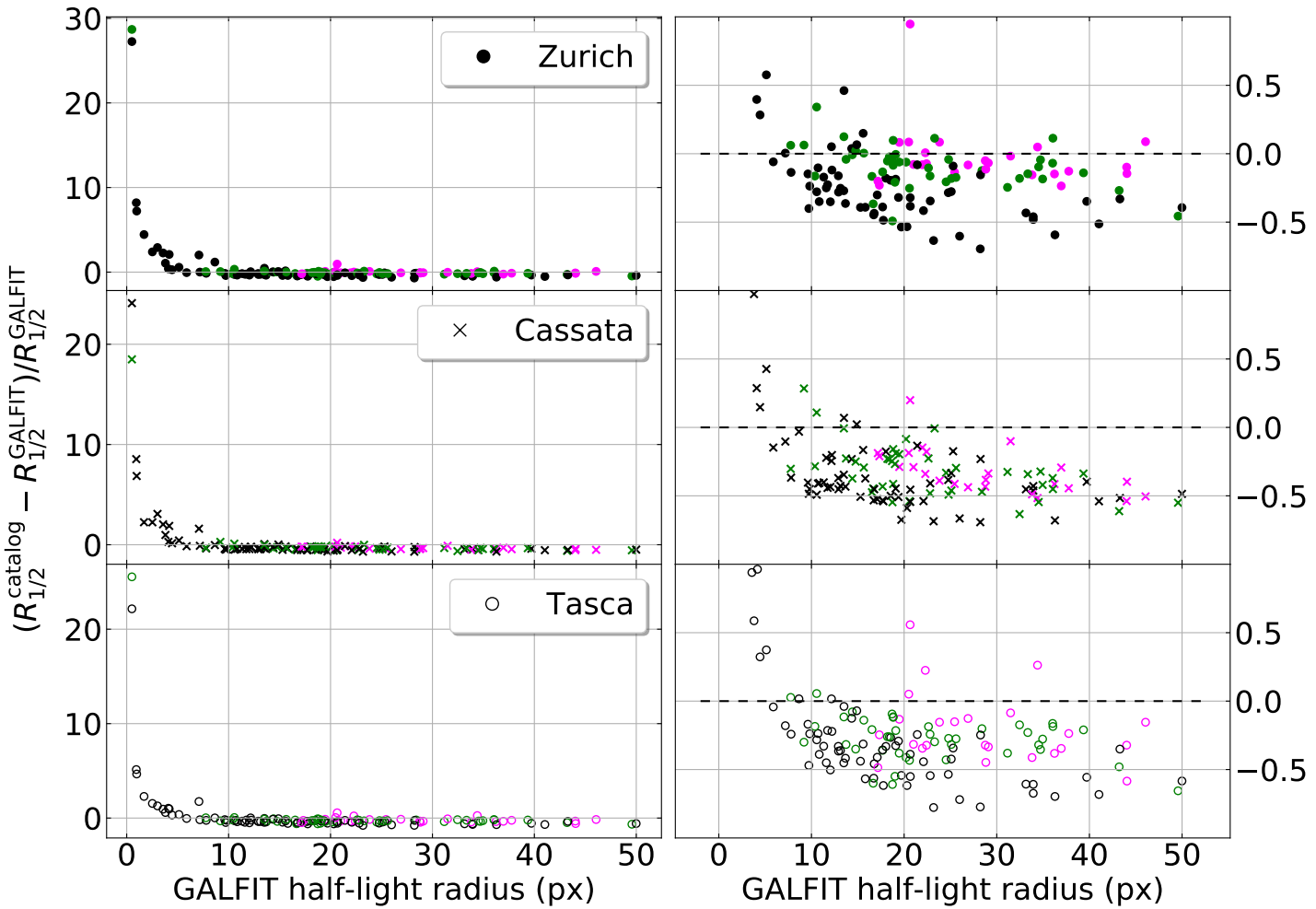
Our sample



HST image of MUSE group CGr30

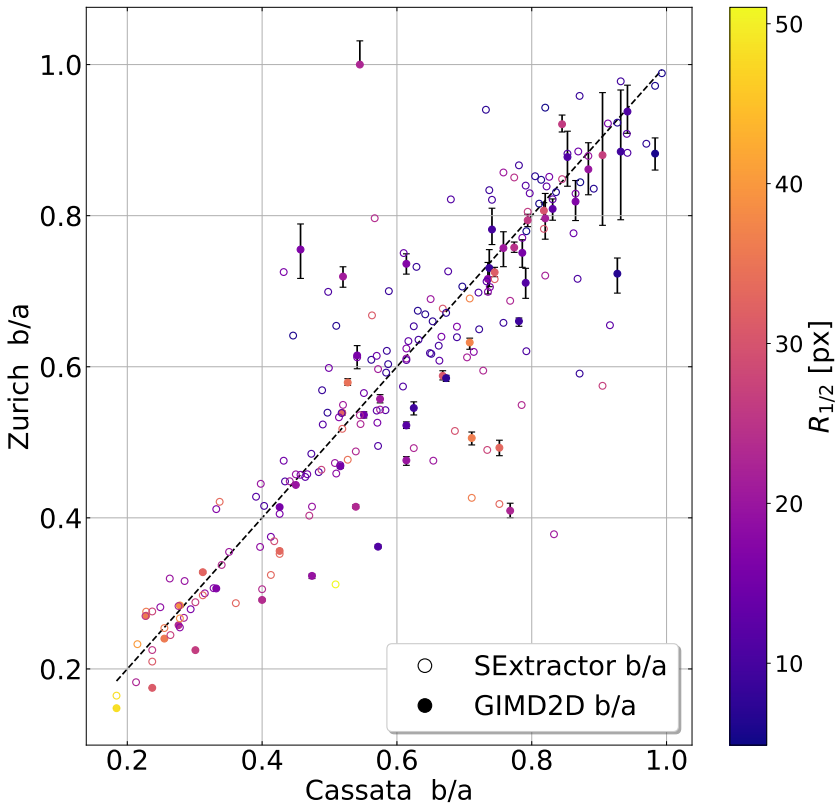
- ▷ 16 MUSE fields in COSMOS area
  - · *deep* and *best_seeing* observations
  - · CGr32 split in 3 parts
- ▷ $\sim$ 500 field galaxies with [OII] detection
  - · HST-ACS counterparts
  - · $0.4 \leq z \leq 1.4$

Checking a couple of parameters
Half-light radius

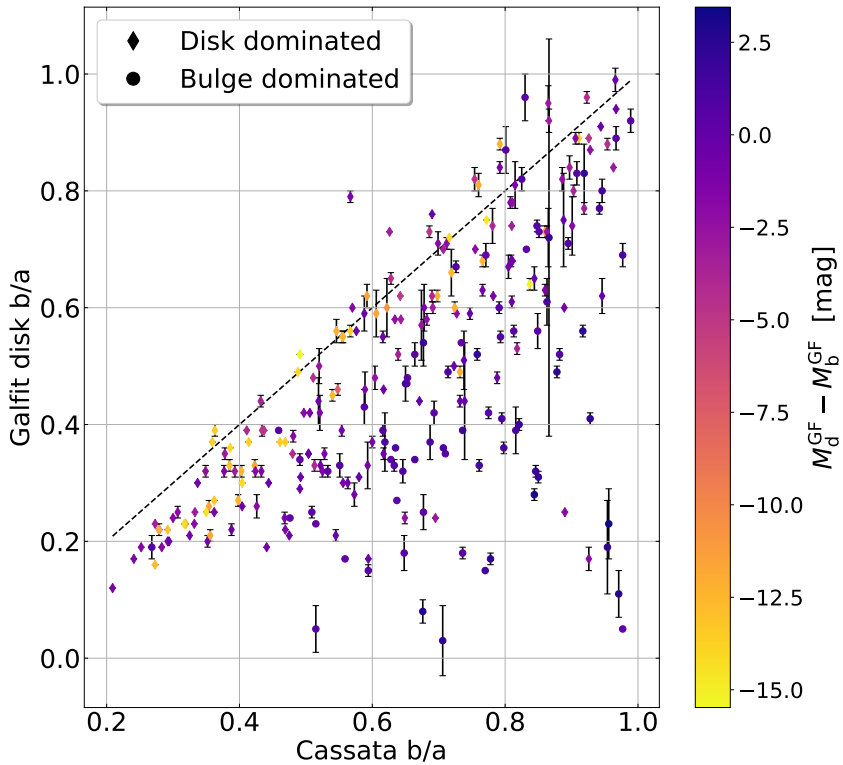


spheroidal disk-like irregulars

Checking a few parameters
Ellipticity

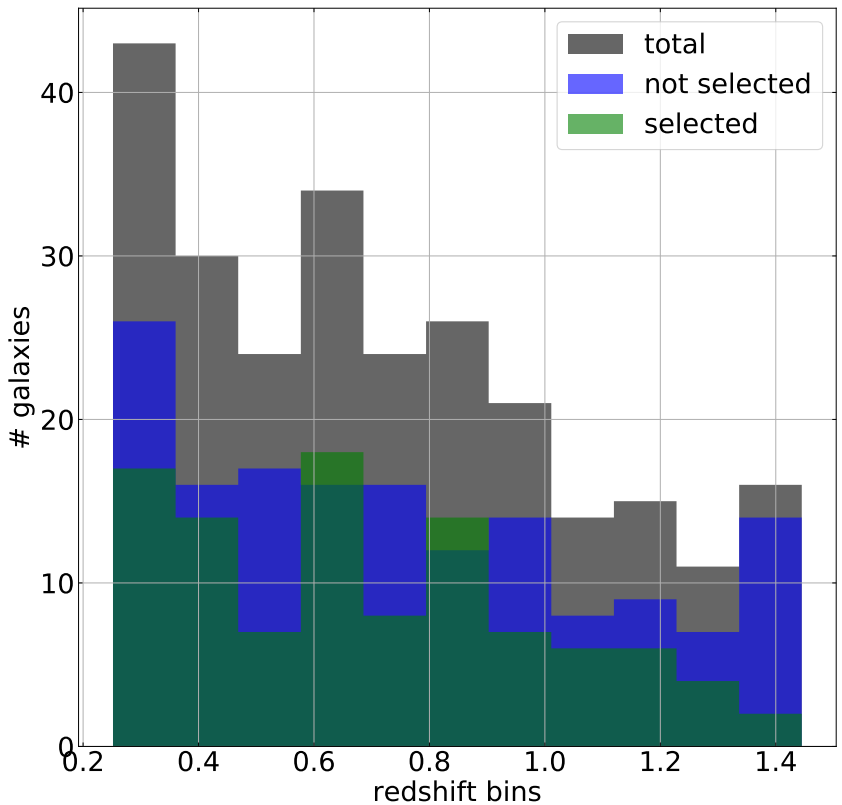


▷ values are consistent between catalogues



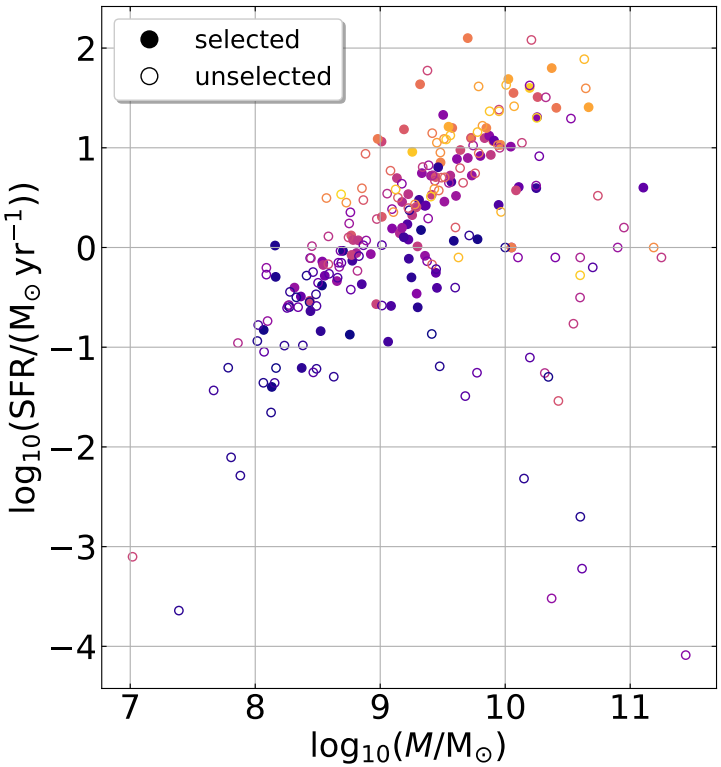
▷ scatter is due to bulge dominated (spherically symmetric) systems

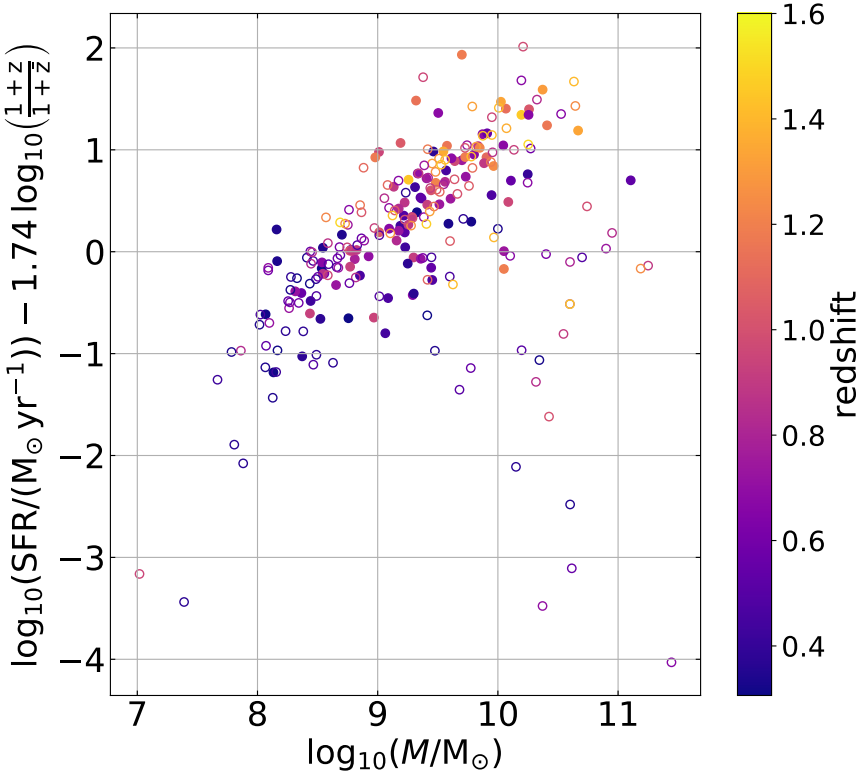
Characteristics of our sample
Redshift distribution



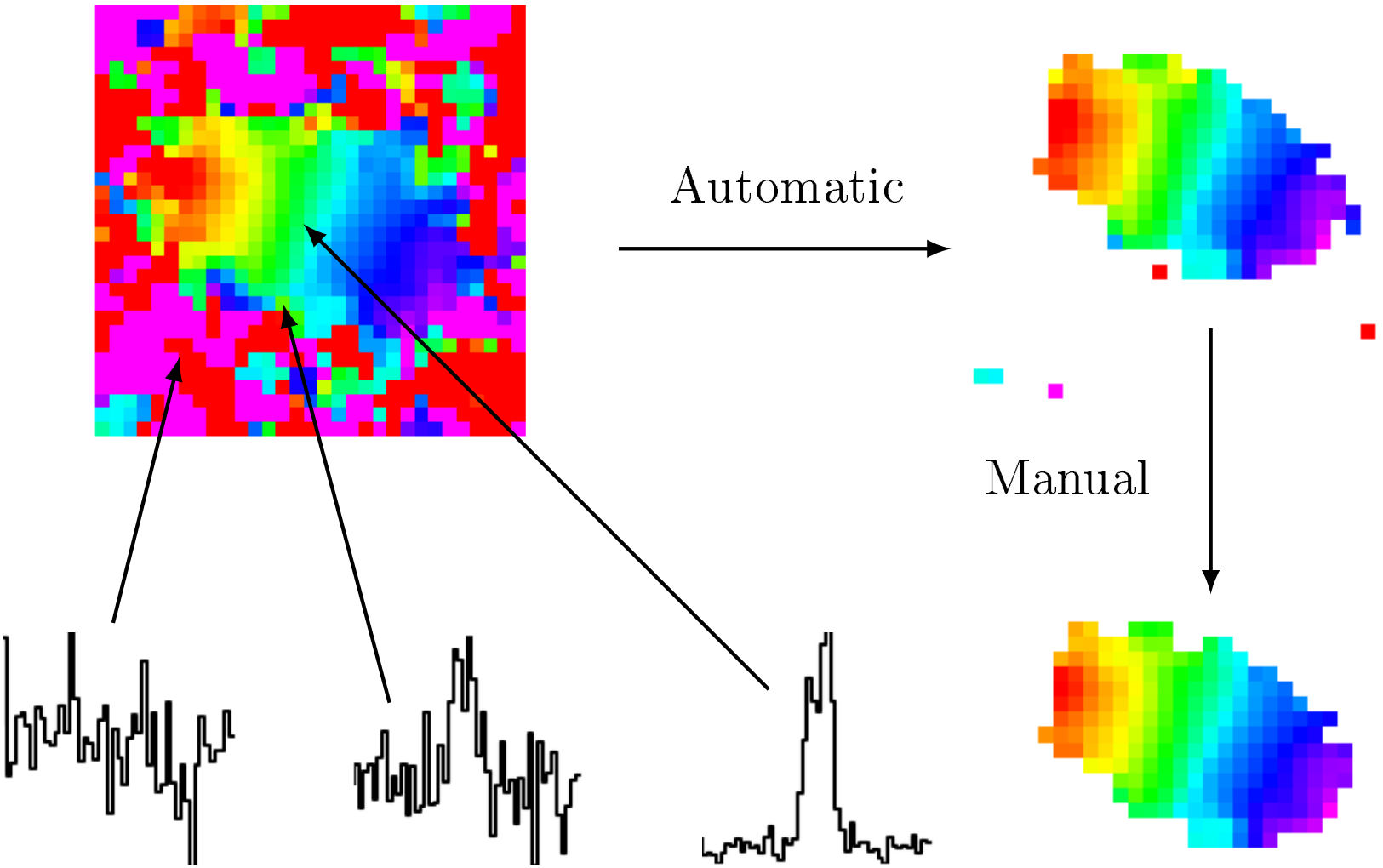
- ▷ sample of **103 galaxies** with $R_{1/2} > 0.35$" and SNR > 5
- ▷ we loose galaxies at $z \approx 1.4$
- ▷ redshift distribution is not drastically changed

Characteristics of our sample
Mass-SFR relation

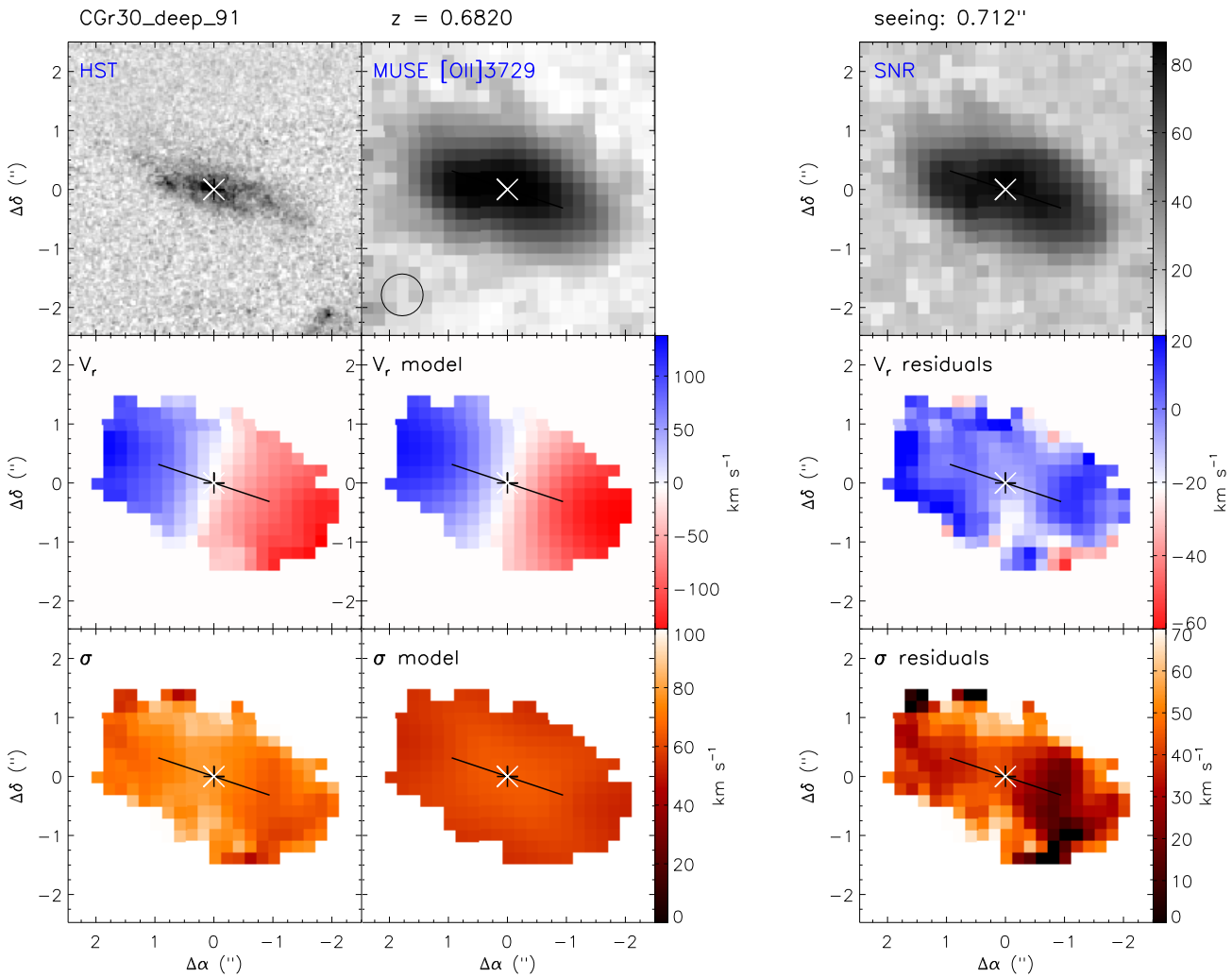




- ▷ we recover the main sequence
- ▷ massive quiescent galaxies are lost
- ▷ redshift correction from **Boogaard et al. 2018** does not improve significantly the scatter


Automatic
Manual

Kinematical modelling
Fitting a model



First results
$V_{\rm max}/\sigma_{\rm v}$ distribution

Bibliography I