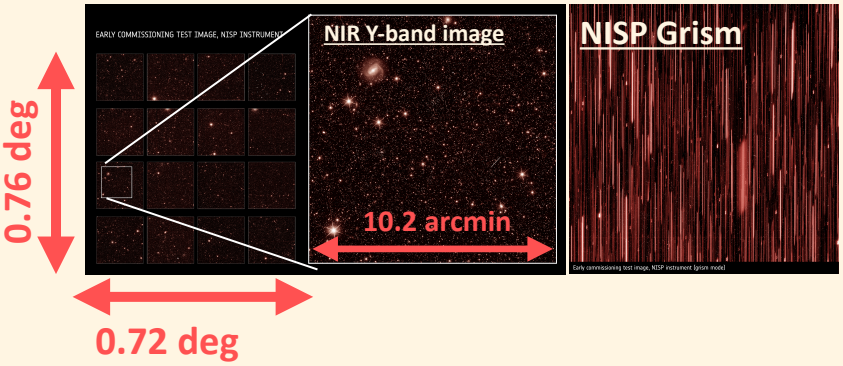
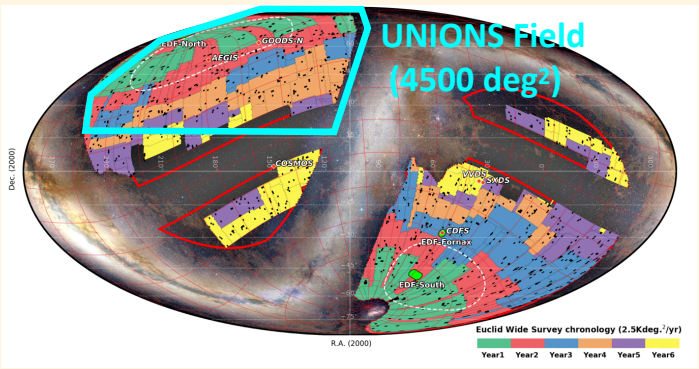
P34: Quasar/AGN search at z=3-10 revealed by Euclid+UNIONS/WISHES survey

Kohei Ichikawa (Waseda U), M. Onoue (Kavli IPMU), T. Nagao, Y. Matsuoka, R. Ide (Ehime U), T. Izumi, M. Imanishi, Y. Toba (NAOJ)

Euclid = NIR (+VIS) satellite w/ wide FoV



Euclid Wide Survey (EWS) = 15000 deg²



Q1: Why do we (=AGN researchers) need Euclid?

- AGN/QSO are rare: n_{QSO} <10^{-3} of n_{LBG} (@z~6)
- NIR band is crucial to cover Lyman break (at z>7)
- Euclid is the first NIR (0.9-2.0um) wide-area survey covering 15000 deg², both NIR imaging+Grism Spec!

=> Euclid will be the first "rare QSO" finders at z>7!

Q2: Why do we (=AGN researchers) need UNIONS/WISHES for Euclid studies?

- UNIONS/WISHES will cover North field of Euclid Wide Survey w/ ugriz, covering the area for 4500 deg²

=> Euclid+UNIONS will be the unique AGN/QSO hunter at z=3-10 (through dropouts)!

Q3: How can we join (get the access to) Euclid-AGN science? => Contact to Kohei Ichikawa!

kohei.ichikawa@aoni.waseda.jp

Q4: What AGN science ideas do we have now?

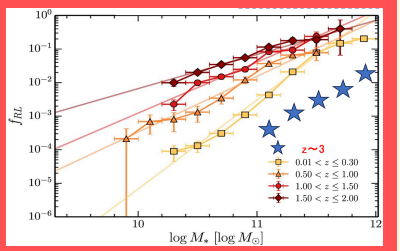
AGN science ideas 1: Radio AGN survey at z=3-8

($n_{radioAGN}$ ~ 1/10 n_{AGN} => we need wide-area survey)

1a: AGN environment at z~3=7 (dropouts)

Radio-loud fraction (f_{RL}) depends on M_*
=> radio AGN is a good tracer of "massive" host galaxies at high-z?

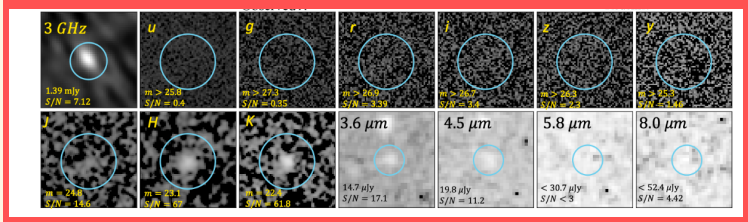
Note: current data is by UNIONS data only (= z~3 only)
We will search z>=4 radio AGN as well!



Ide, Nagao et al.

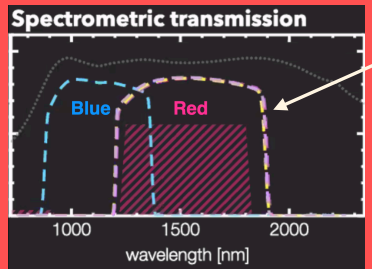
1b: Optically-dark radio AGN

"dark" in optical but "bright" in NIR/VLASS
=>highly obscured or z>=8 radio AGN candidates!?



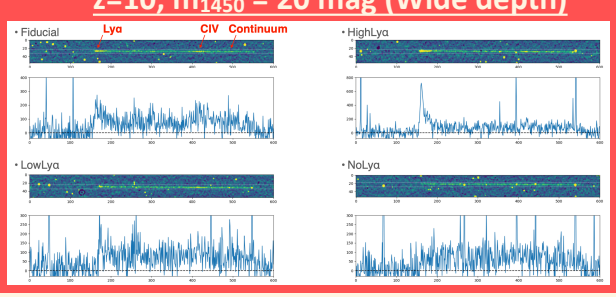
Fitriana, Ichikawa et al.

AGN science ideas 2: NIR Grism spec of z=9-10 QSO candidates (Onoue et al.)



EWS will obtain NISP "Red" Grism Spectra

z=10, m_{1450} = 20 mag (Wide depth)



Continuum detection+ Lyα even at z~10!