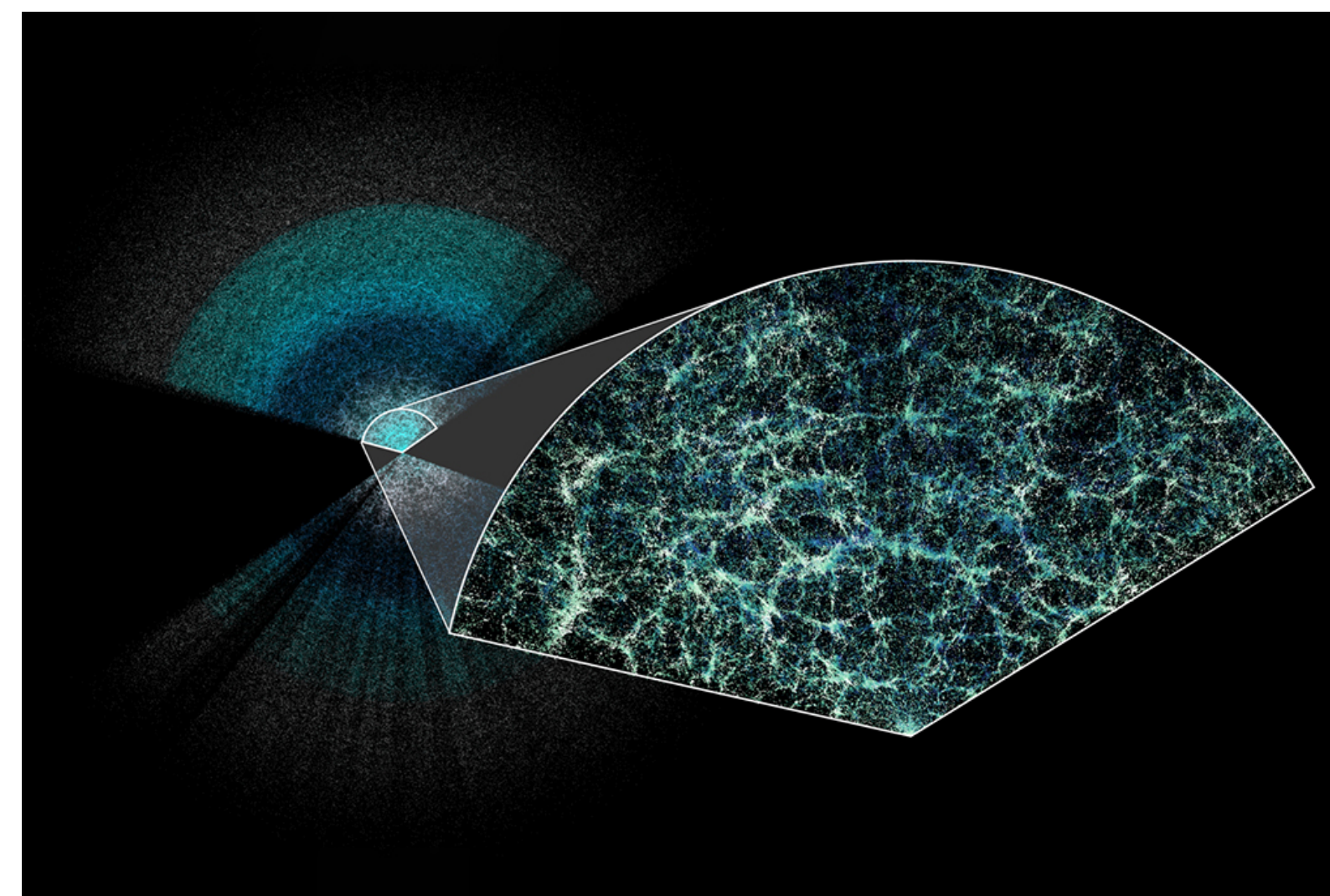
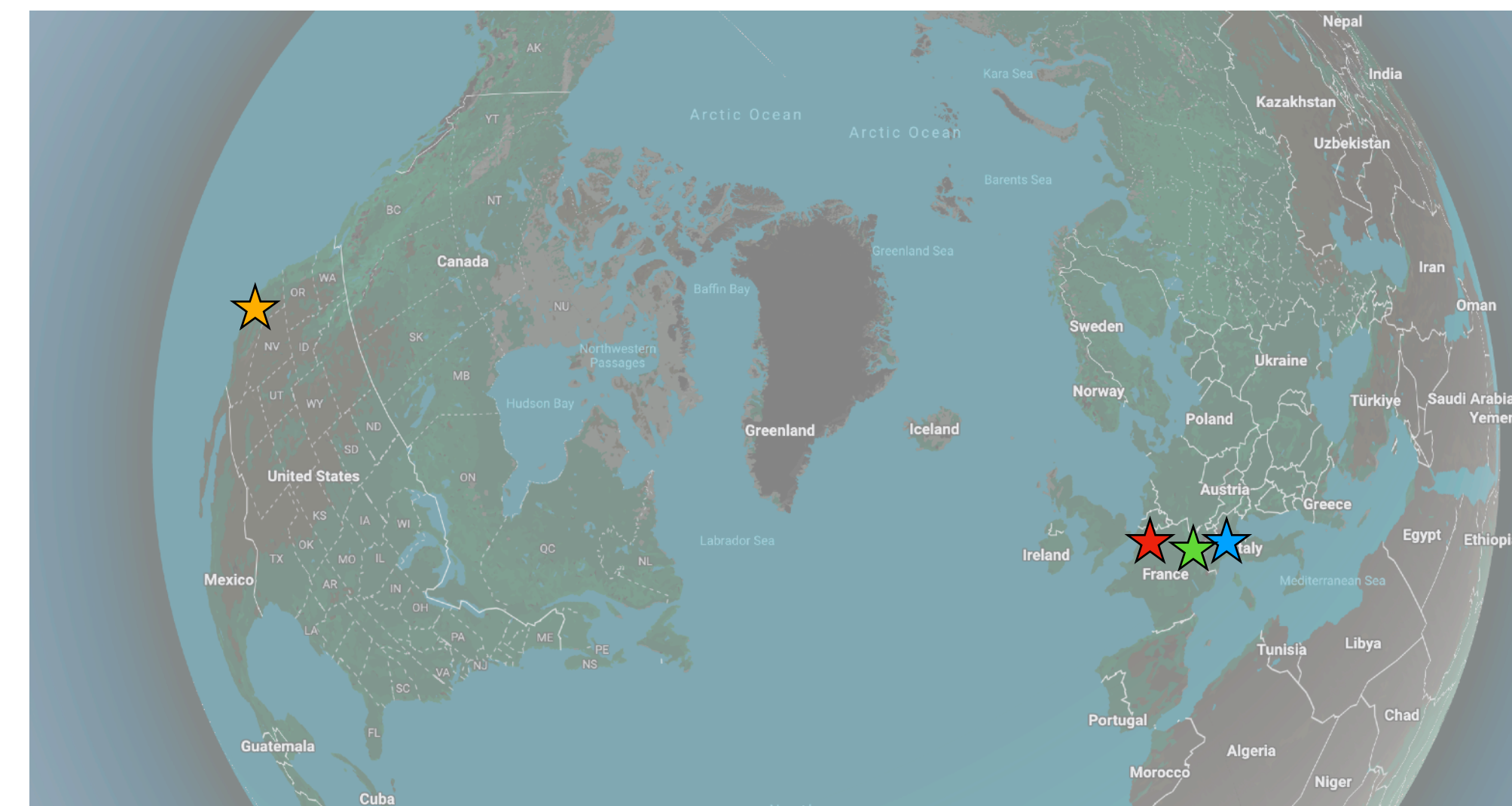


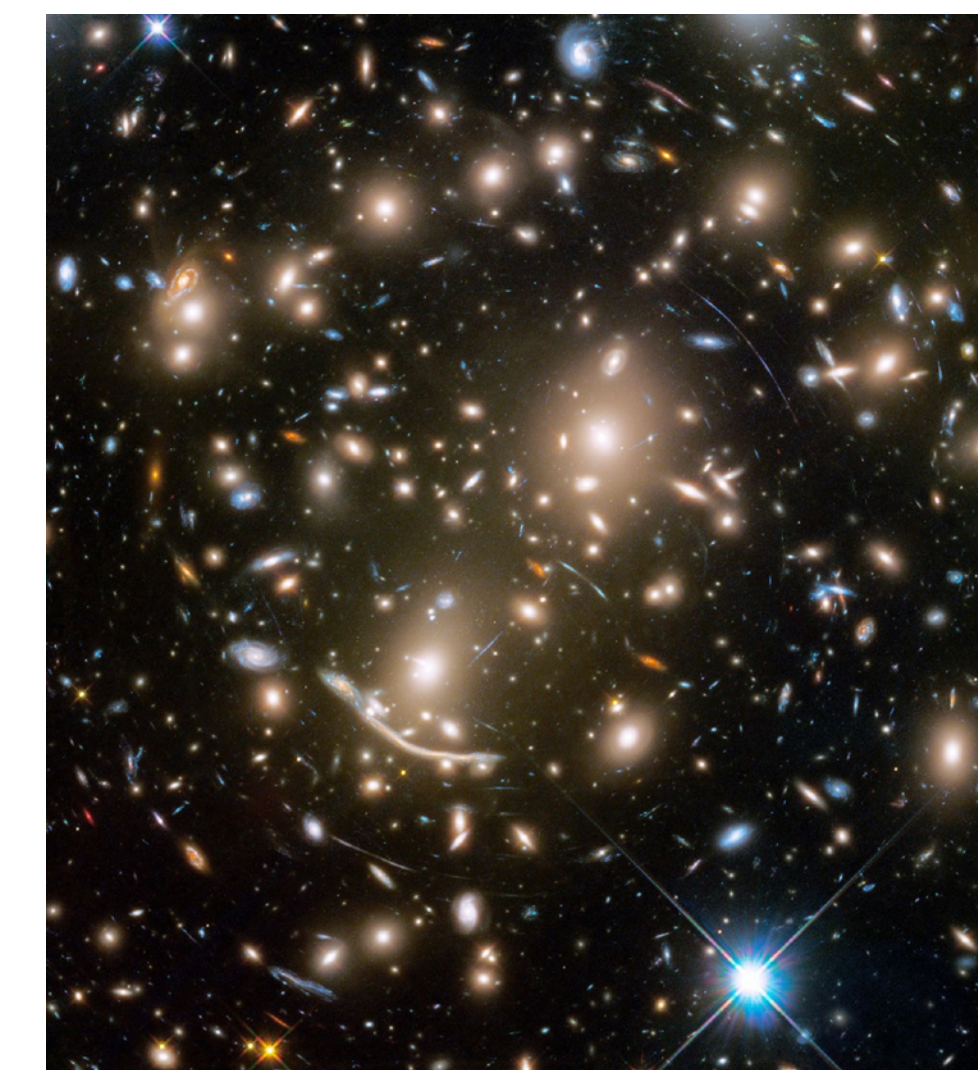


# My background

- Joined APC in Sept. 2025, to work on *Euclid* (x Rubin)
- Before that, I worked in Paris (GEPI, CEA/Saclay), Milan (Brera), Lausanne (EPFL), Berkeley (LBNL)
- Extensive experience in:
  - large-scale structure cosmological experiments (SDSS/eBOSS, **DESI**, **DESI-2**)
  - galaxy evolution (galaxy clusters,  $z \sim 2-3$  galaxies)
- Work with optical / near-infrared imaging and spectroscopy



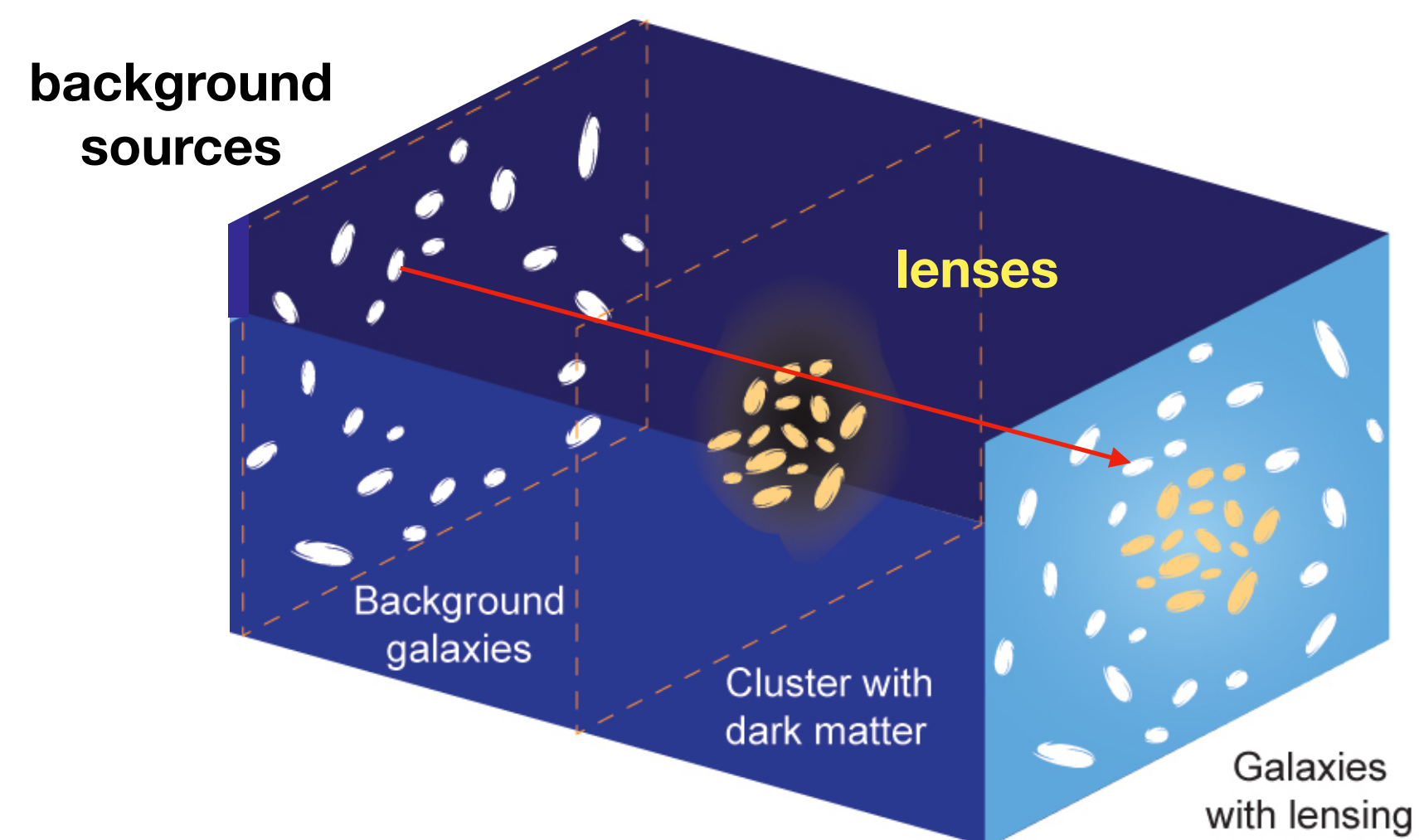
<https://newscenter.lbl.gov/>



<https://science.nasa.gov/>

# The *Euclid* mission

- One the main cosmological experiment of the 2020's ("Stage IV"), along with e.g. DESI, Rubin/LSST, *Roman*
- ESA satellite launched on Jul. 2023, Main Survey started on Feb. 2024, for six years; 2000+ researchers
- Primary mission: constrain dark energy and dark matter
- How: weak-lensing (and galaxy clustering)
  - tiny ( $\sim 1\%$ ), correlated distortion of background galaxy shapes by foreground matter

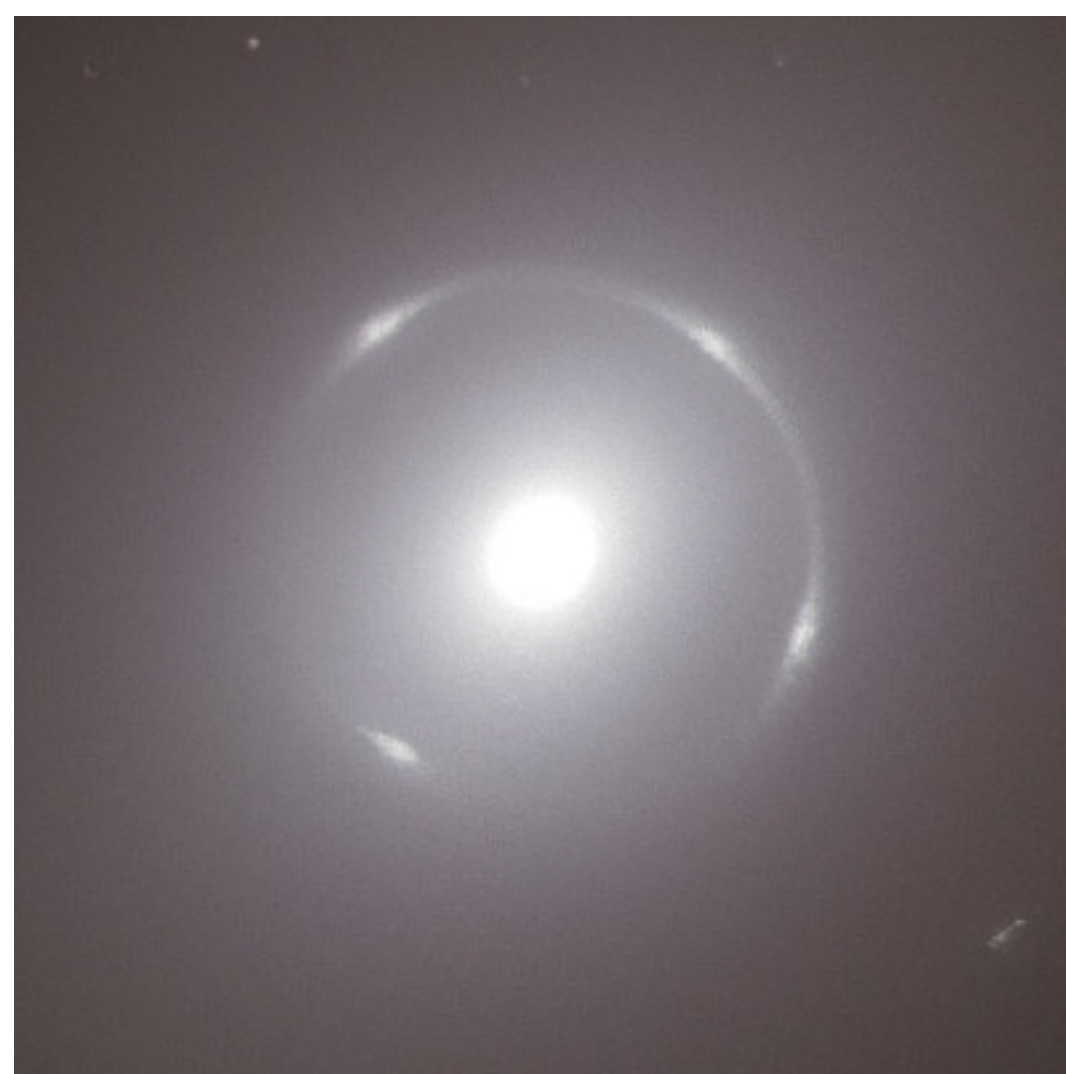


NASA/SSU/Aurore Simonnet



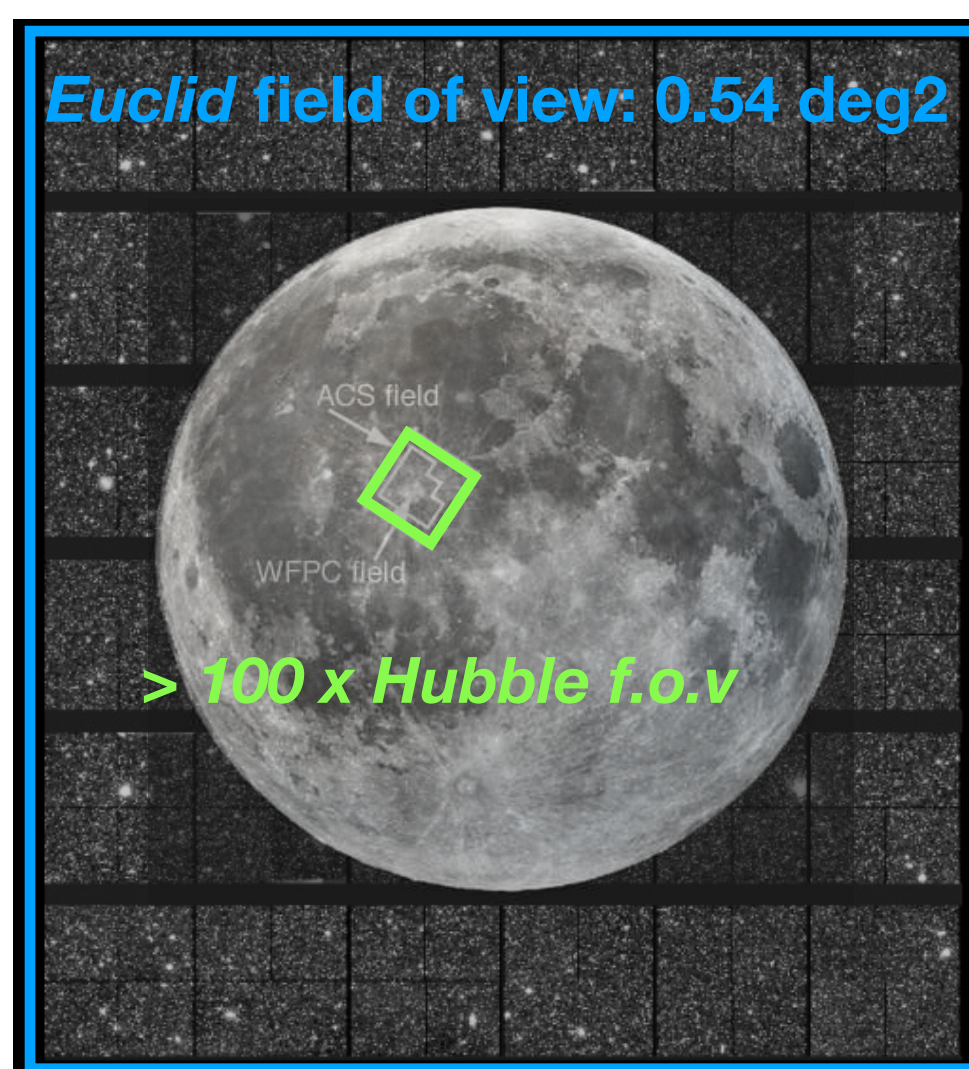
# The *Euclid* mission

- One the main cosmological experiment of the 2020's ("Stage IV"), along with e.g. DESI, Rubin/LSST, *Roman*
- ESA satellite launched on Jul. 2023, Main Survey started on Feb. 2024, for six years; 2000+ researchers
- Primary mission: constrain dark energy and dark matter
- How: weak-lensing (and galaxy clustering)
  - tiny ( $\sim 1\%$ ), correlated distortion of background galaxy shapes by foreground matter
  - needs precise galaxy shape measurement → **high-resolution space-based imaging (0.2", ~Hubble-like)**

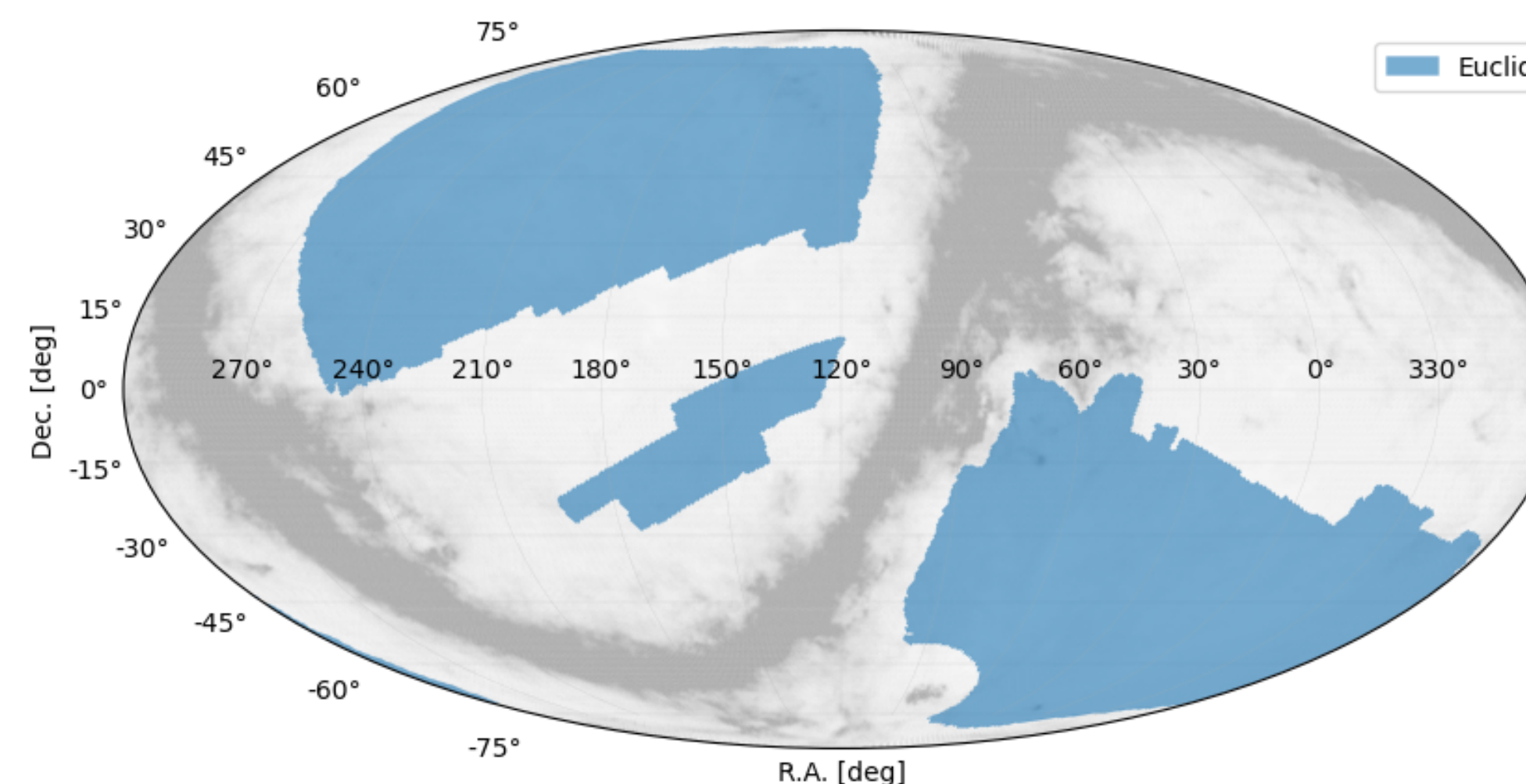


# The *Euclid* mission

- One the main cosmological experiment of the 2020's ("Stage IV"), along with e.g. DESI, Rubin/LSST, *Roman*
- ESA satellite launched on Jul. 2023, Main Survey started on Feb. 2024, for six years; 2000+ researchers
- Primary mission: constrain dark energy and dark matter
- How: weak-lensing (and galaxy clustering)
  - tiny ( $\sim 1\%$ ), correlated distortion of background galaxy shapes by foreground matter
  - needs precise galaxy shape measurement  $\rightarrow$  **high-resolution space-based imaging (0.2",  $\sim$ Hubble-like)**
  - can only be measured in a statistical manner  $\rightarrow$  **large field-of-view to survey a large area ( $\sim 1/3$  of the sky)**

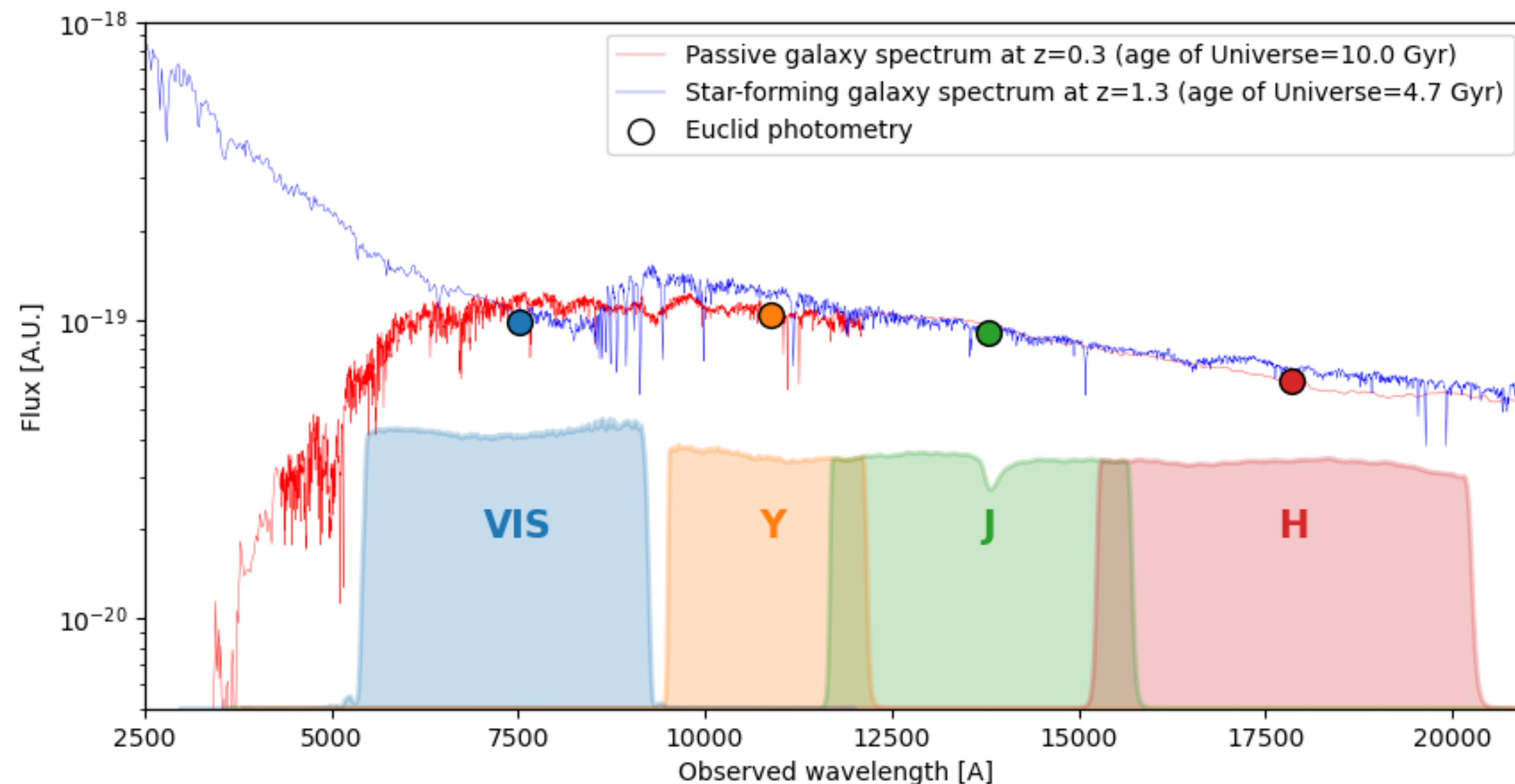


<https://www.euclid-ec.org/>  
<https://stephenwilkins.co.uk/>



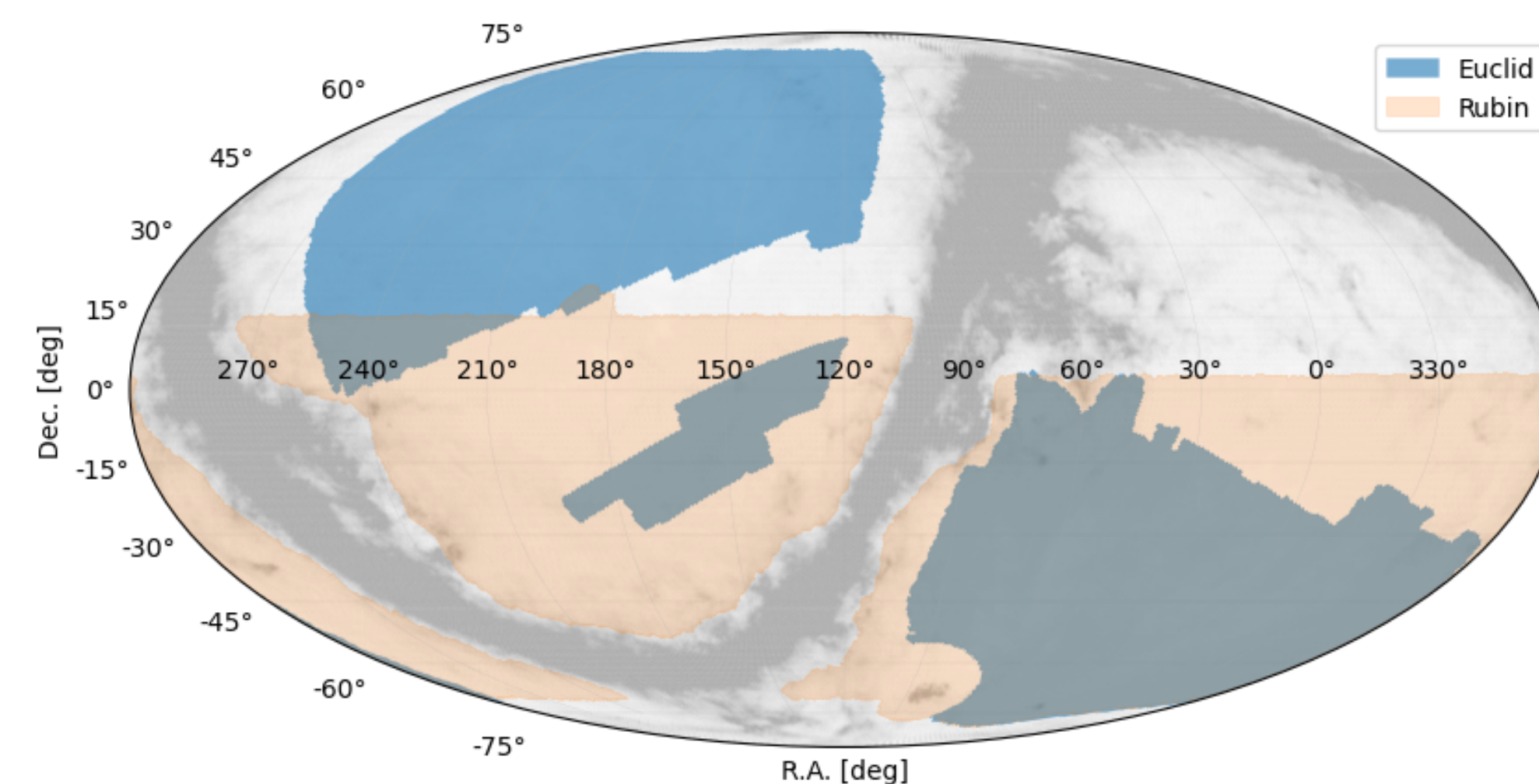
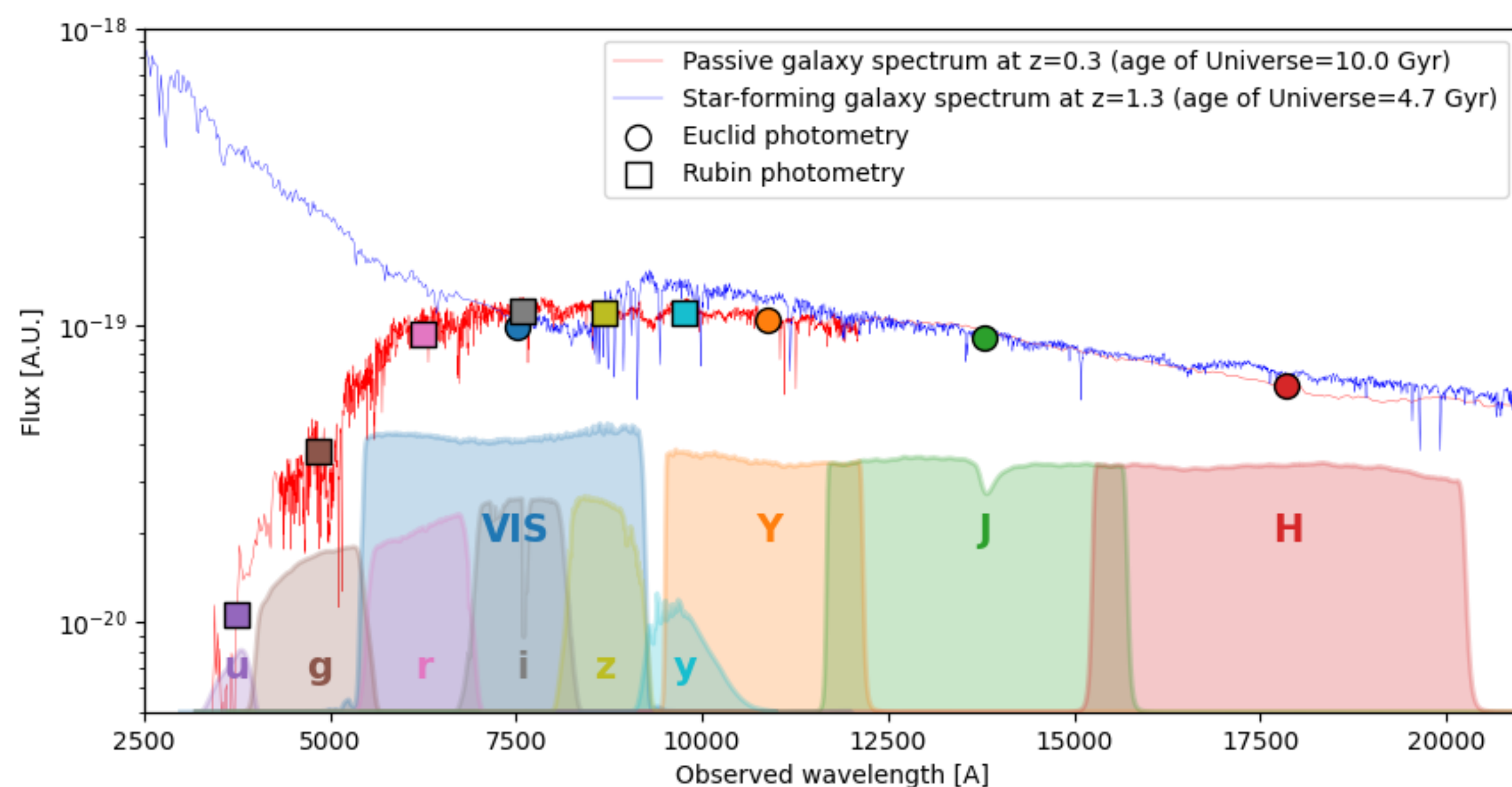
# Adding Rubin/LSST

- Weak-lensing needs good photometric redshifts (=how far are galaxies)
  - *Euclid* has four imaging bands (VIS, Y, J, H) → cannot achieve alone good photometric redshifts
  - *Euclid* needs complementary optical imaging



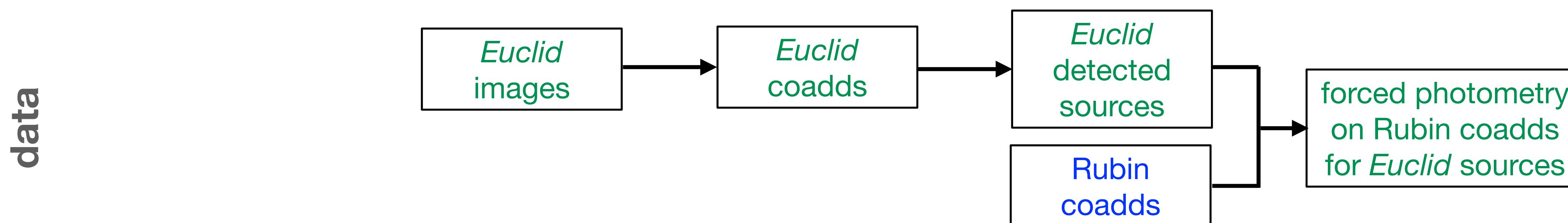
# Adding Rubin/LSST

- Weak-lensing needs good photometric redshifts (=how far are galaxies)
  - *Euclid* has four imaging bands (VIS, Y, J, H) → cannot achieve alone good photometric redshifts
  - *Euclid* needs complementary optical imaging
- Rubin/LSST (2026 — 2036):
  - US-experiment, 8m-telescope in Chile, 4000+ researchers
  - Deep, repeat imaging of the sky in the optical (*ugrizy*-bands)
  - Will provide optical imaging for > 50% of the *Euclid* footprint



# *Euclid* Derived-Data Products (DDP)

- Structure to share data between collaboration: DDP
- DDP-2: Prepare photometry on Rubin coadded images for *Euclid* sources
- Work with group in Munich (LMU)
- Data:
  - Rubin will share to the DDP their coadded images



# *Euclid* Derived-Data Products (DDP)

- Structure to share data between collaboration: DDP
- DDP-2: Prepare photometry on Rubin coadded images for *Euclid* sources
- Work with group in Munich (LMU)
- Data:
  - Rubin will share to the DDP their coadded images
- Simulate realistic Rubin coadded images with *Euclid* sources:
  - use *Euclid* mock galaxies (position, spectrum, shape)
  - inject those in simulated Rubin raw exposures
  - process raw exposures with Rubin pipeline → Rubin-like coadds
  - sims necessary to validate photometric pipeline; and useful for tons of other things!

