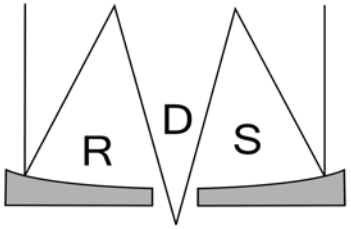
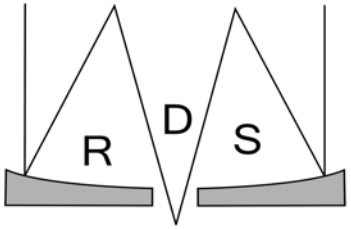


Report from the Council of German Observatories (Rat deutscher Sternwarten RDS)

Matthias Steinmetz

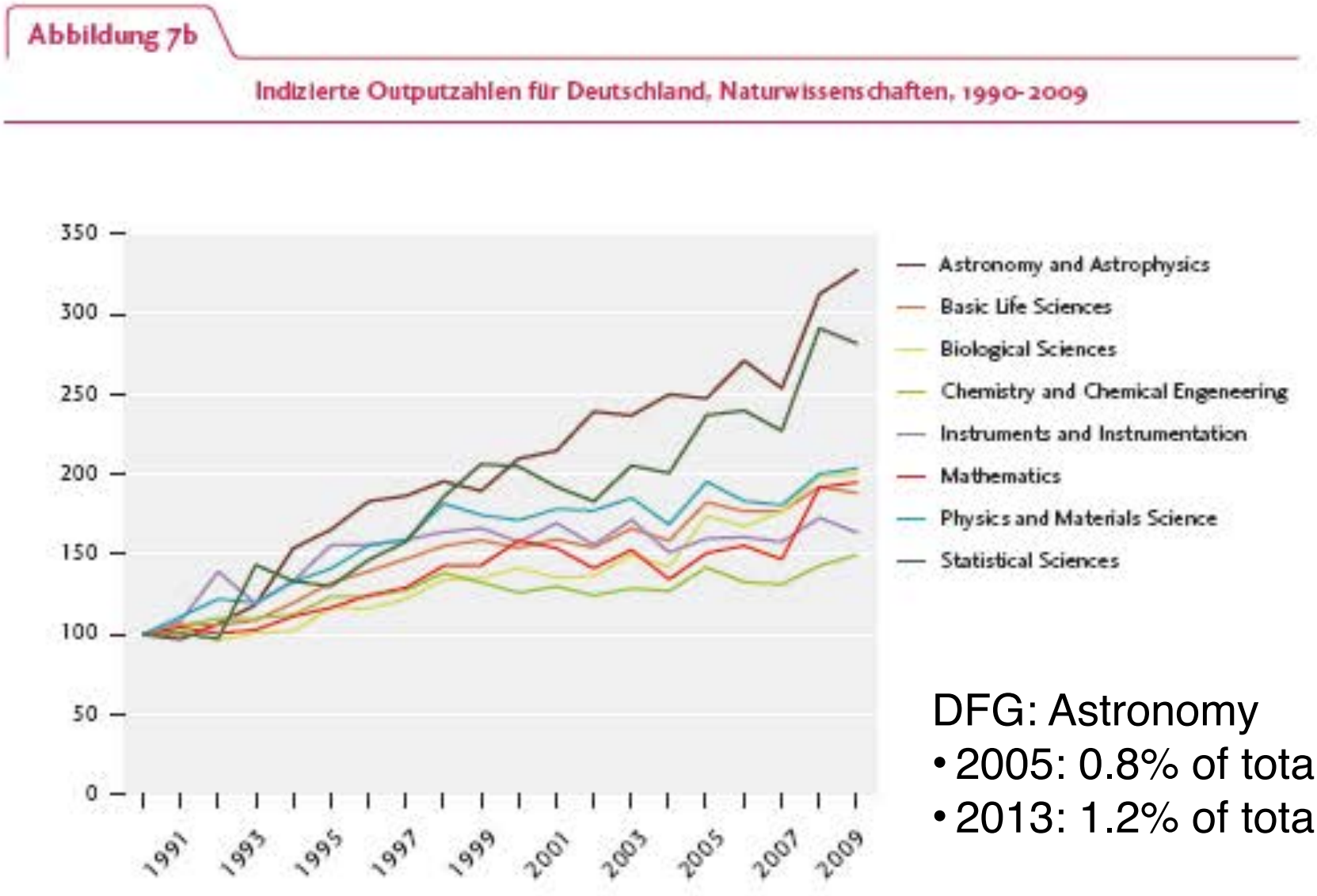
Administrativa



- Reorganisation of Astronomische Gesellschaft (AG) and Rat deutscher Sternwarten (RDS)
  - all under the roof go the AG
  - observatories: institutional („ex officio“) members
  - RDS: council of the institutional members
  - in general: AG president chairs the RDS
- AG elections 23.9.2014:
  - president: Matthias Steinmetz (Potsdam)
  - vice-president (and incoming president 2017): Joachim Wambsganß (Heidelberg)


Bibliometrische Analyse des deutschen Forschungs-Outputs im internationalen Vergleich
Indikatorenbericht 2010
CWTS

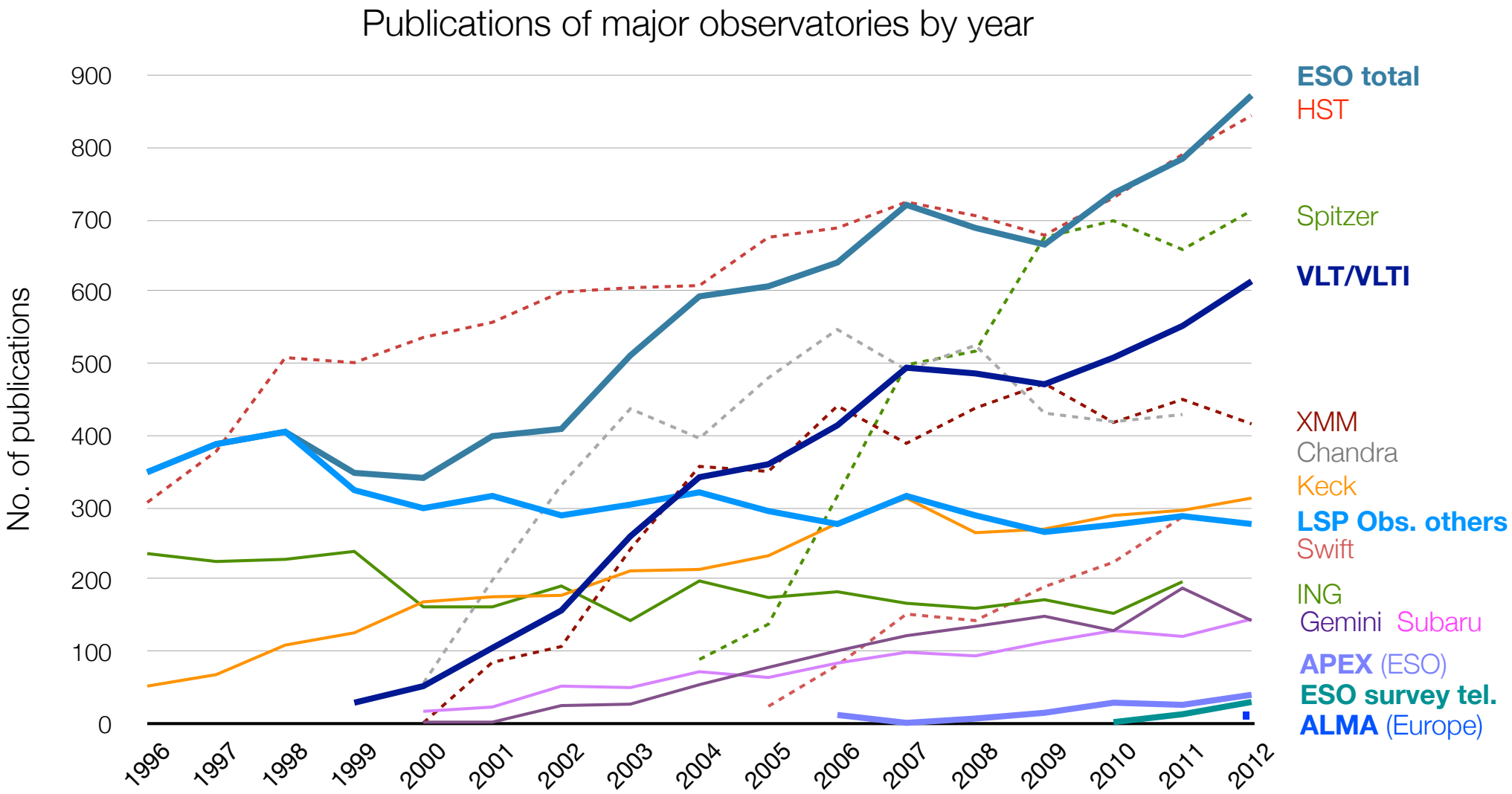
Figure 7b shows that the growth in these areas [physics and material sciences, biological sciences], together with the areas of Chemistry and Chemical Engineering, amounts to about 100 %, while two of the smaller areas of the sciences have had the strongest growth (Astronomy and Astrophysics as well as Statistical Sciences (growth of about 200 %)).



DFG: Astronomy

- 2005: 0.8% of total funding
- 2013: 1.2% of total funding

Observatories vs Productivity



VLT-Instrumentation 2014

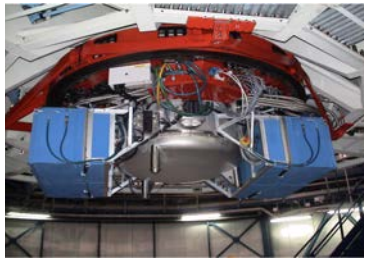
FORS2

CRIRES

FLAMES

UVES

VISIR



VIMOS

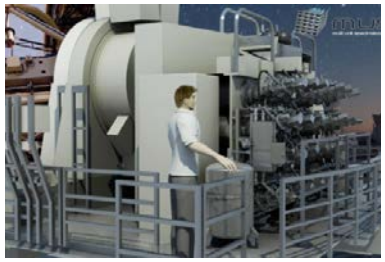
SINFONI

MUSE

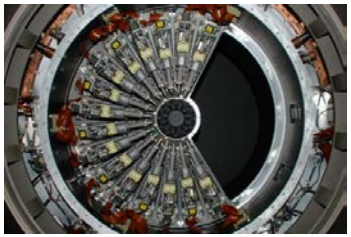
KMOS

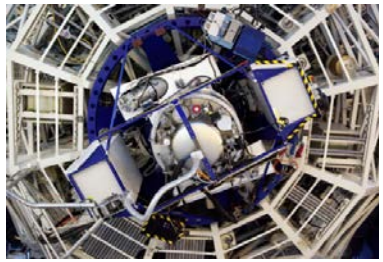
X-shooter

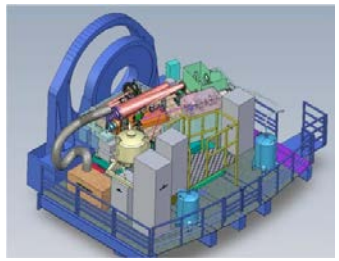
SPHERE



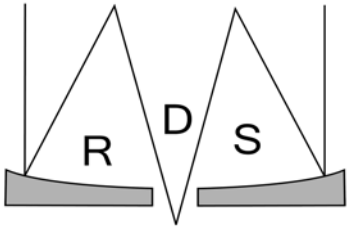
HAWK-I







ESO as seen by the US Decadal Survey ...

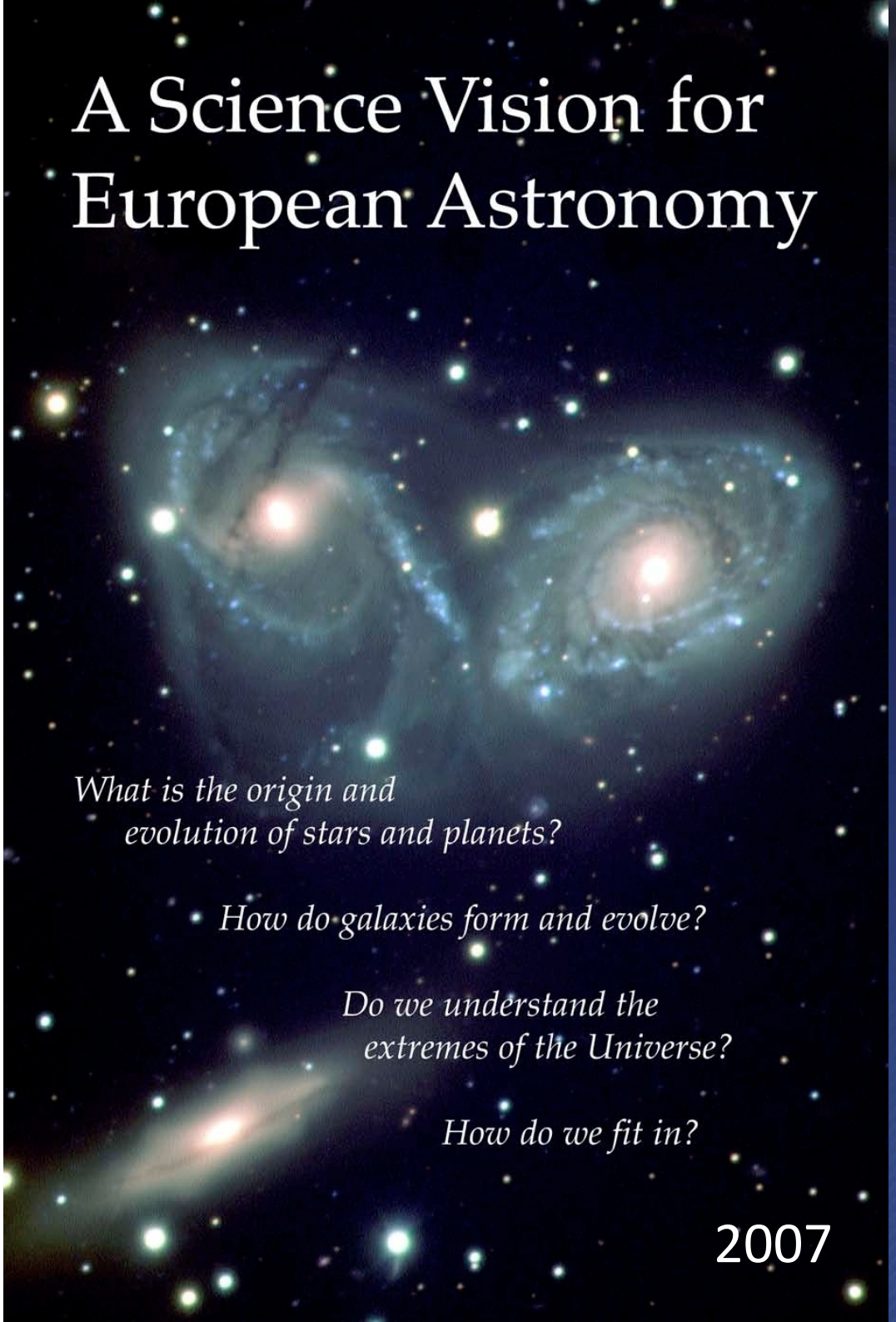


- The 14-nation ESO consortium is on track to become the undisputed leader in ground-based OIR astronomy with its planned construction of the 42m European Extremely Large Telescope (E-ELT) …
- By concentrating most of its resources into a single international partnership, Europe has minimized duplication of capability between facilities, created a major international research center, and established a funding line for construction that is intended to lead from ALMA, to E-ELT …

... and from Australia

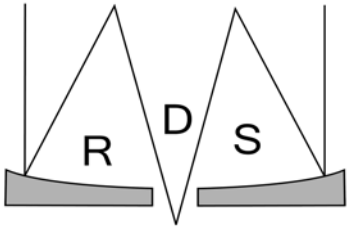
- but as I contemplate the future of Astronomy - I do not just see that the future of astronomy is bright at ESO, instead, I see that the future of Astronomy is ESO.

Brian Schmidt, NL


A Science Vision for European Astronomy
What is the origin and evolution of stars and planets?
How do galaxies form and evolve?
Do we understand the extremes of the Universe?
How do we fit in?
2007


ASTRONET
www.astronet-eu.org
The ASTRONET Infrastructure Roadmap:
A Strategic Plan for European Astronomy
2009

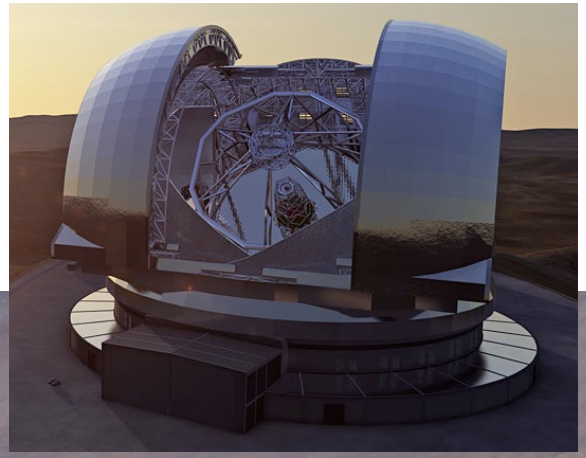
Status of the E-ELT and SKA



- E-ELT
  - all ESO member states have approved the construction of the E-ELT (90% budget provision)
  - ratification of the Brazil agreement in process
  - potential new member states
- SKA
  - work towards phase-1 based on a 650M€ cost cap
  - Germany indicated its intend to terminate the participation in SKA as of June 30, 2015
  - result: very limited access to the SKA (as well as little participation of German industry)

Verbundforschung 2014-17 – Themes

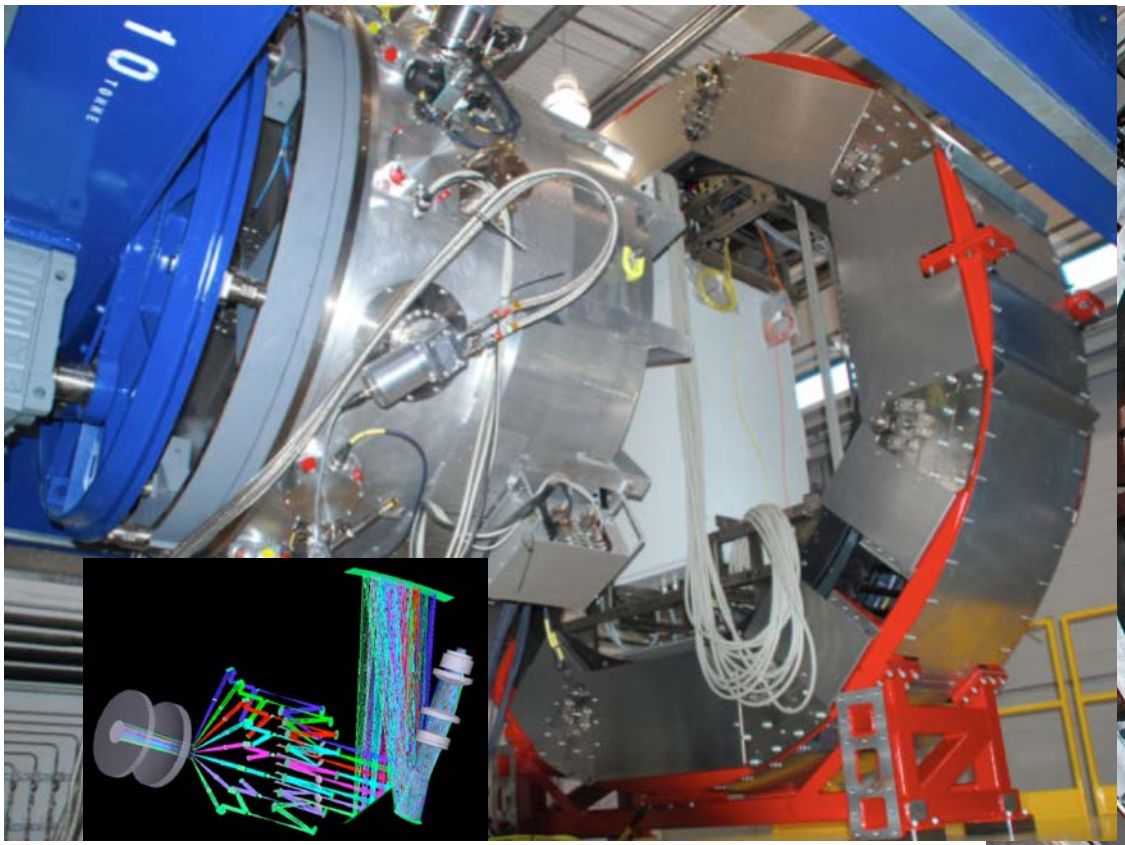
- ESO
  - MICADO, METIS, HIRES, MOS
  - GRAVITY, CRIRES (final), MUSE (ramp down), 4MOST
- LOFAR
- Software
  - GAVO
  - Services (ARC, MUSE ...)

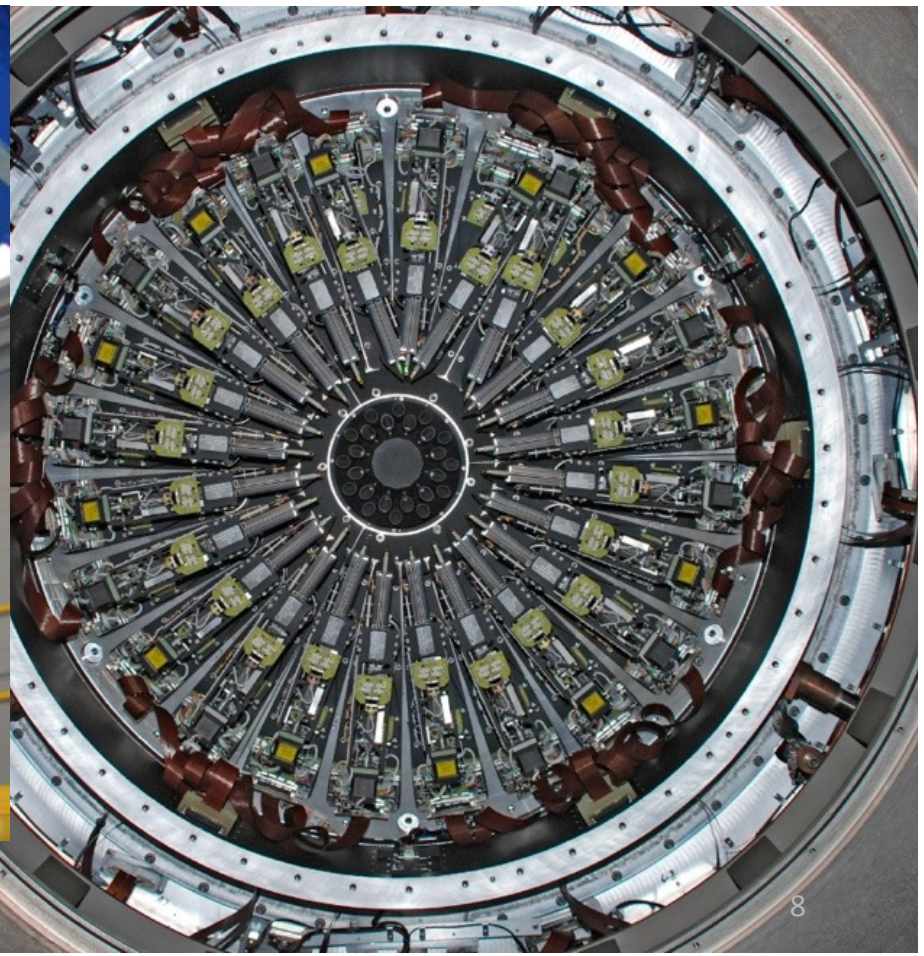


KMOS for the ESO VLT

- Efficient machine to study galaxy evolution at 1<z<3 and z>7.
- Galaxy dynamics, star formation and chemical evolution
- 24 deployable IFUs allow simultaneous observation of 24 objects.
- For every object: 200 Spektren at 0.8µm < λ < 2.5µm and R~3500

Consortium: LMU-Observatory (35%), MPE (15%), Edinburgh, Durham, Oxford.

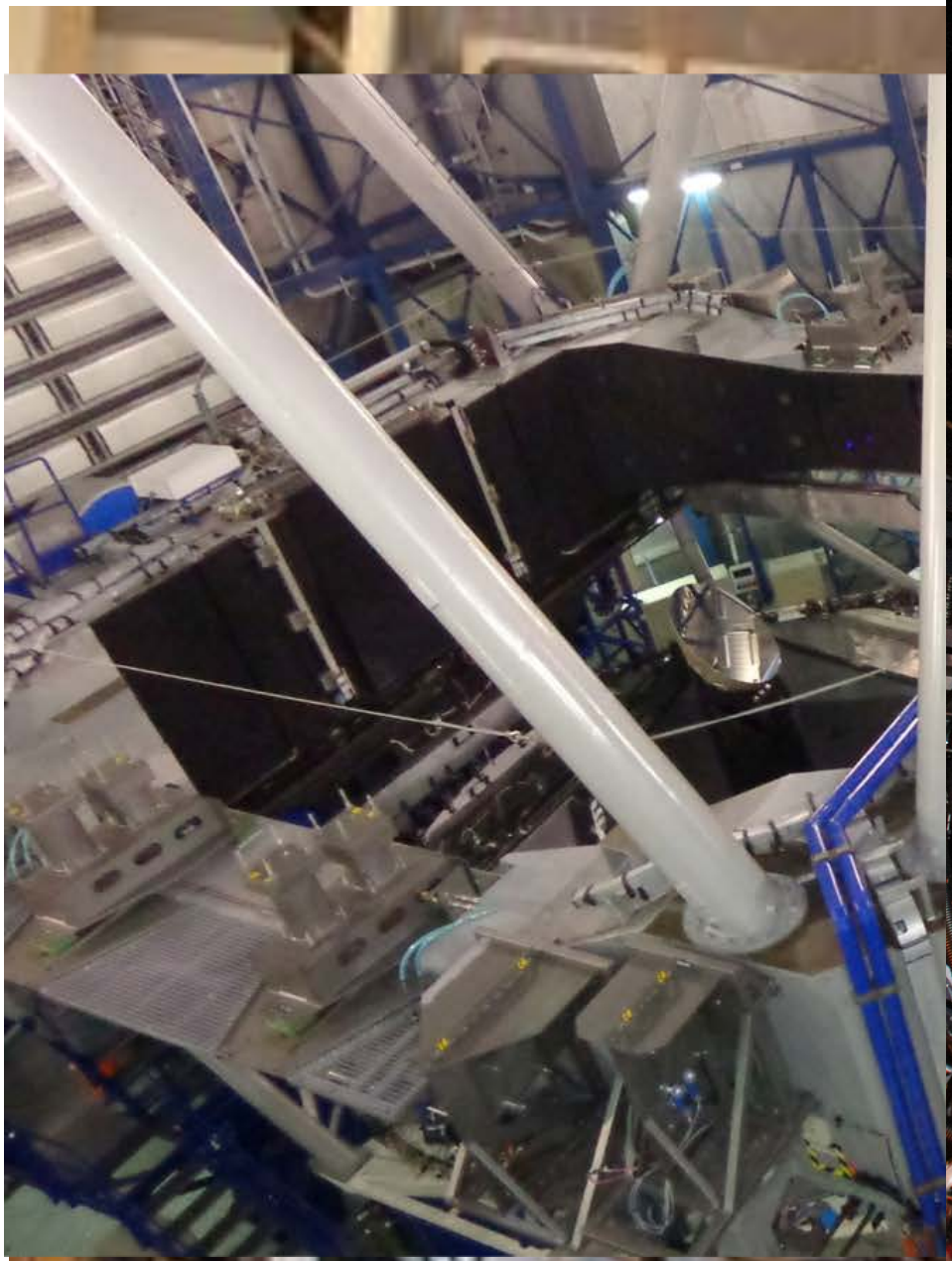


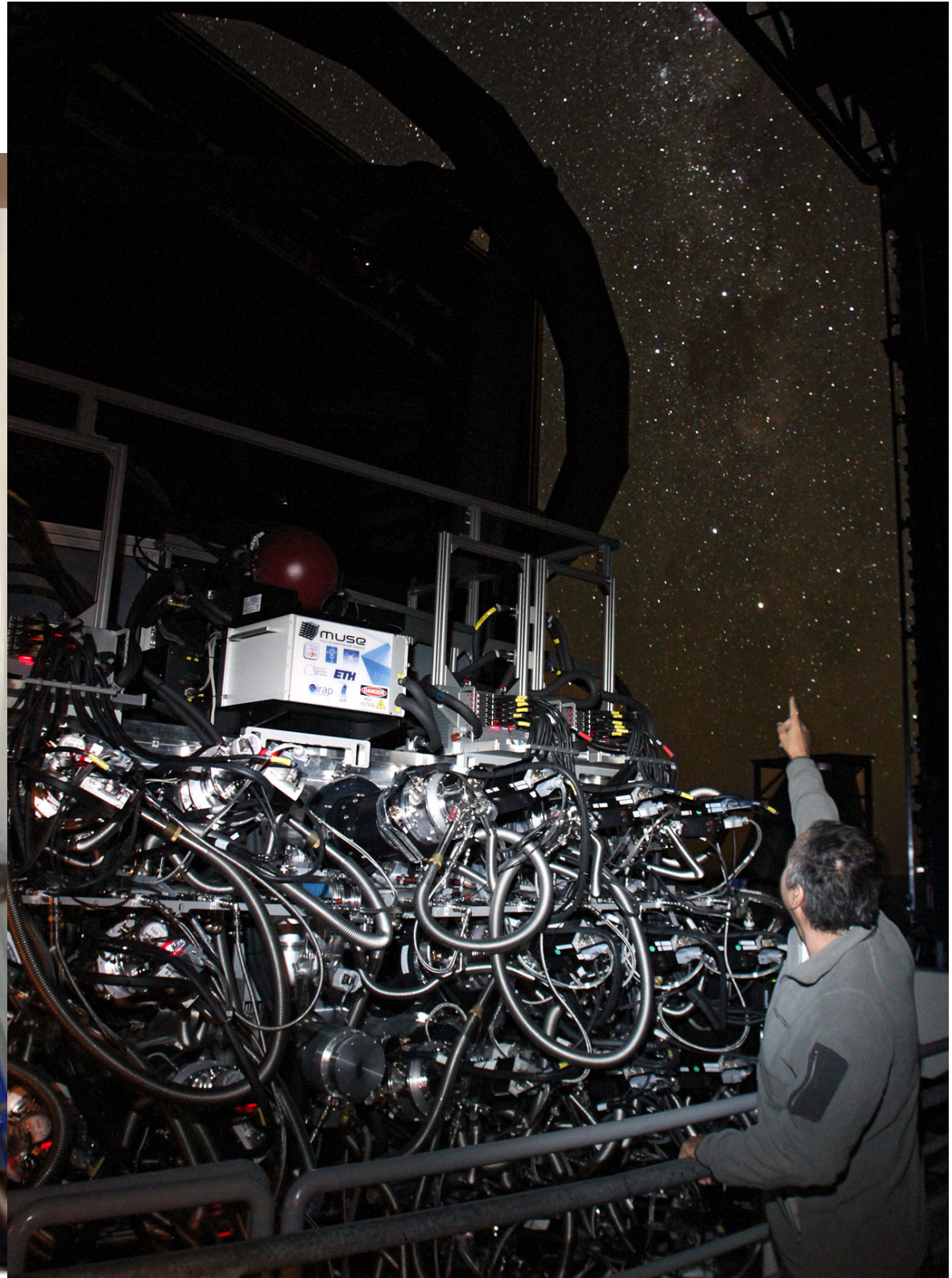


24 Pick-off arms feed 24 IFUs

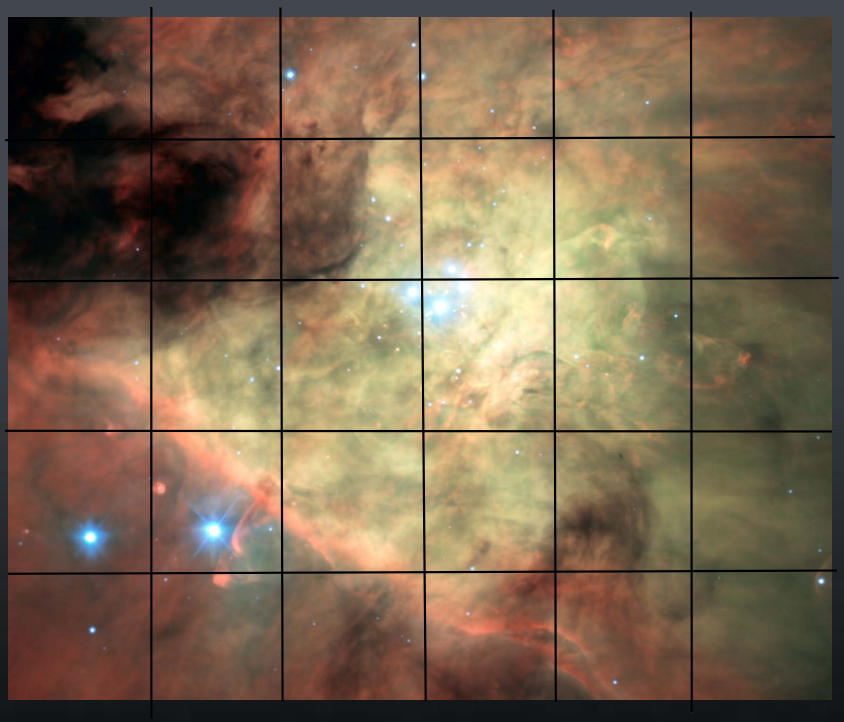
Süddeutsche Zeitung 12.1.13

MUSE am ESO-VLT:





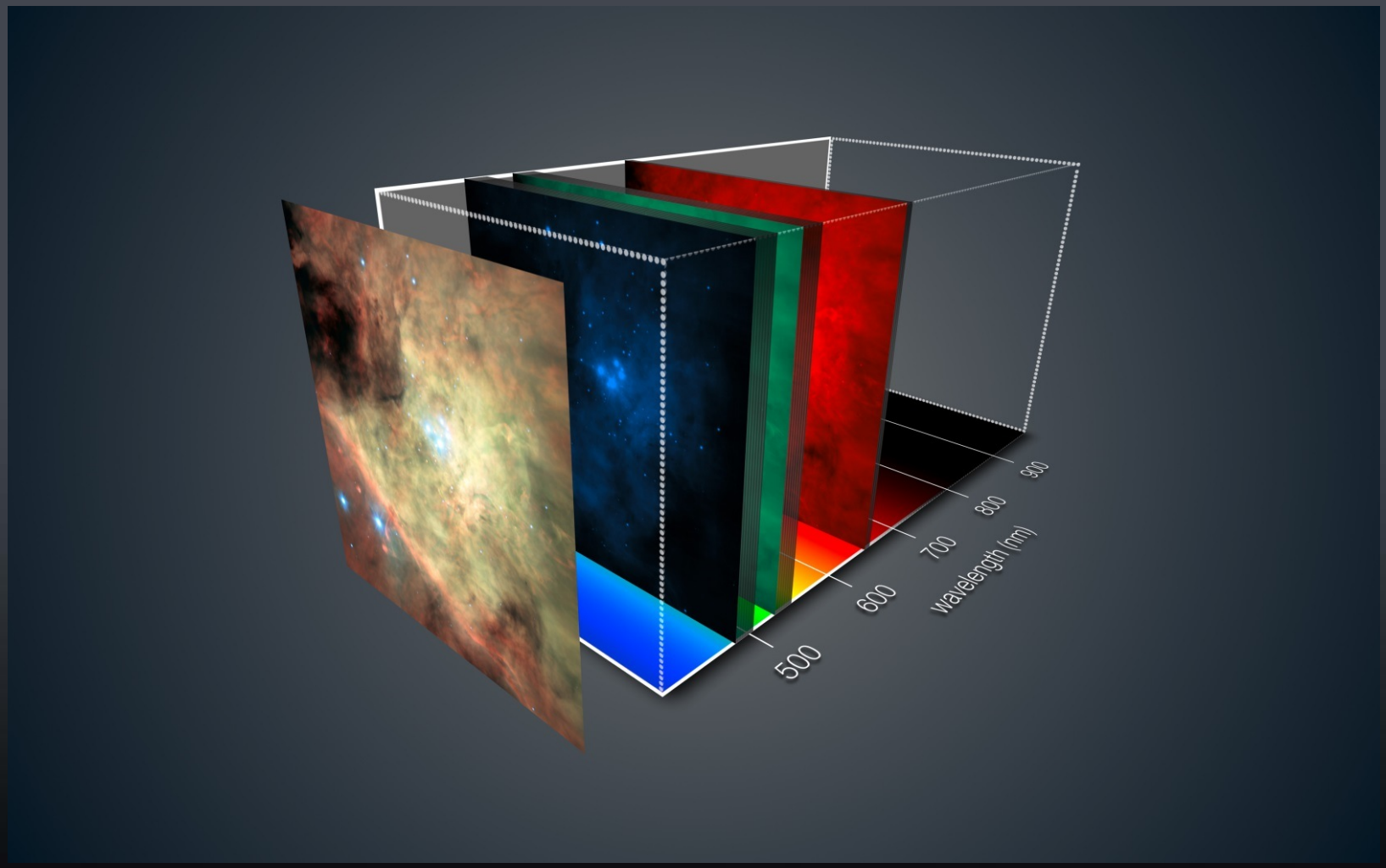
Mapping large area: the Orion Nebula



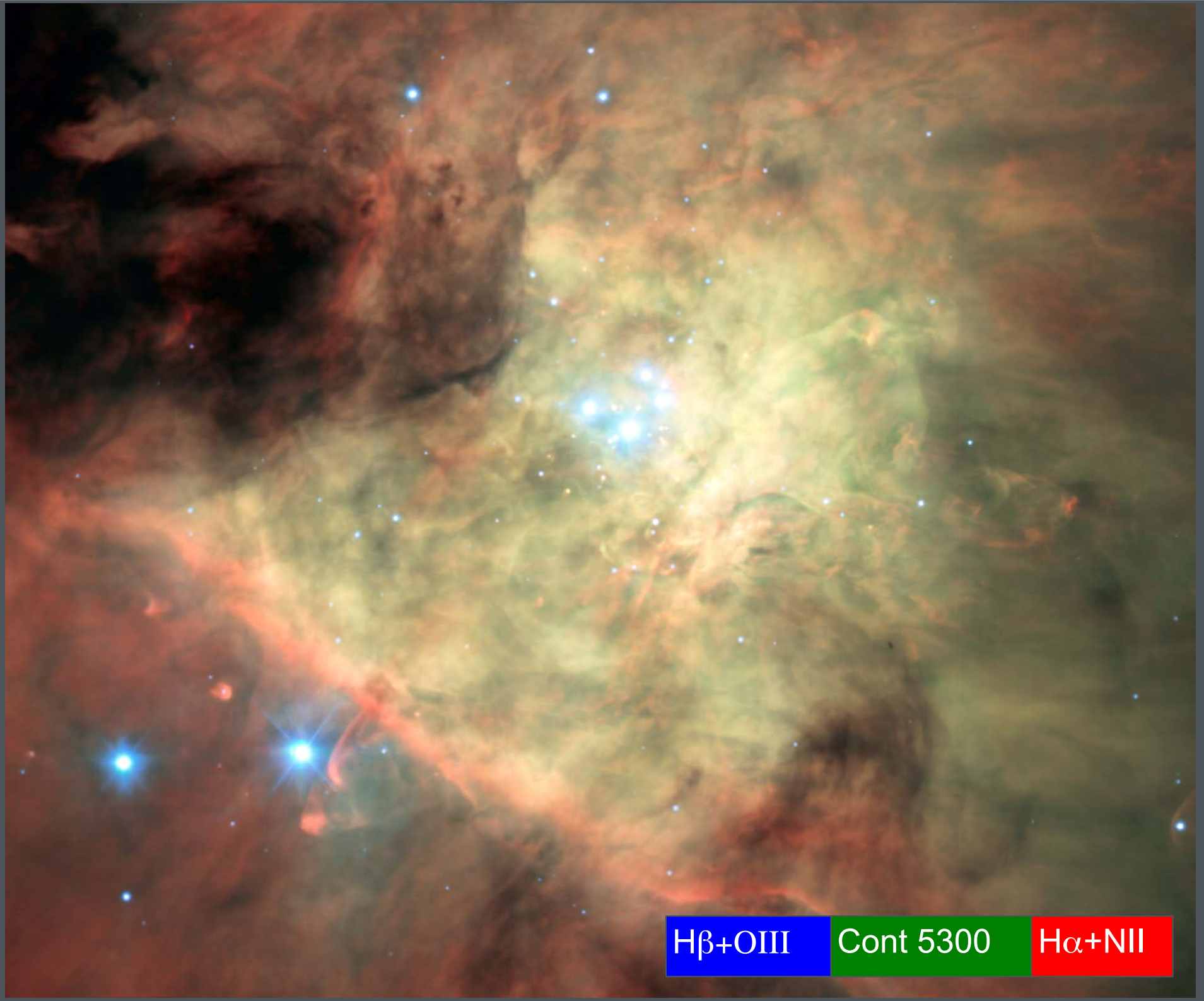
- 6x5 arcmin^2
- 30 fields, 60 exposures of 5 sec integration
- 2.5 hours total
- 2.5 x 2 millions of spectra (300 spectra/ sec)
- Datacube of 1748x1460x4000

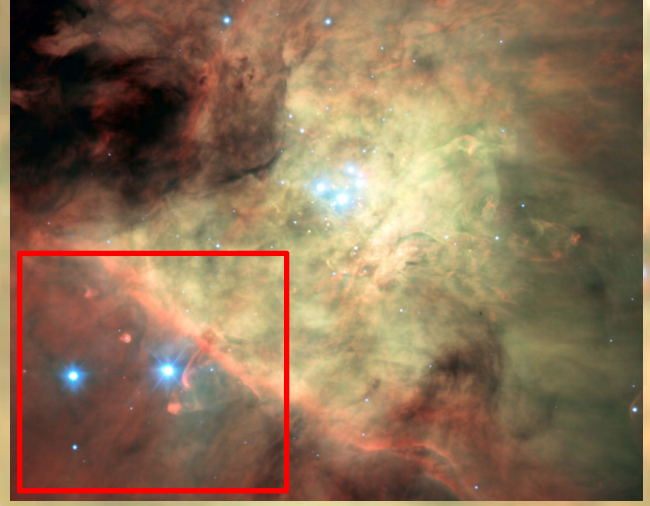
Prepared by Peter Weilbacher, AIP

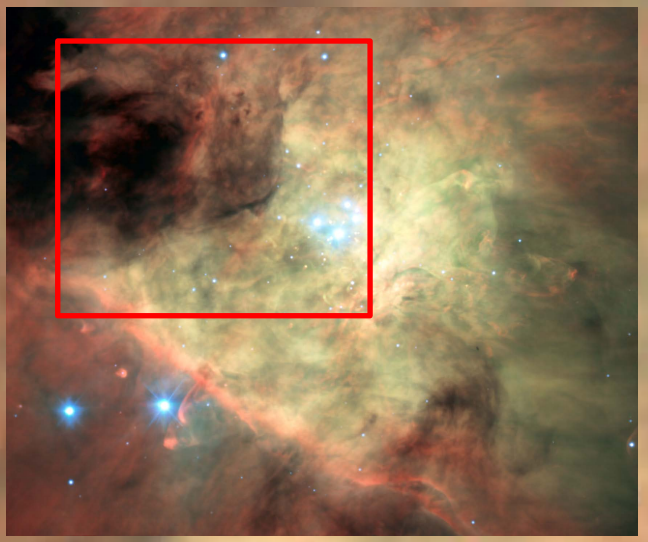
3D-data: images & spectra!



Imaging: FoV: 60“x 60“ , sampling 0.2“, 288 x 288 spaxels, 2000 images
Spectroscopy: 82944 spectra, 465-930nm, R=2000-4000

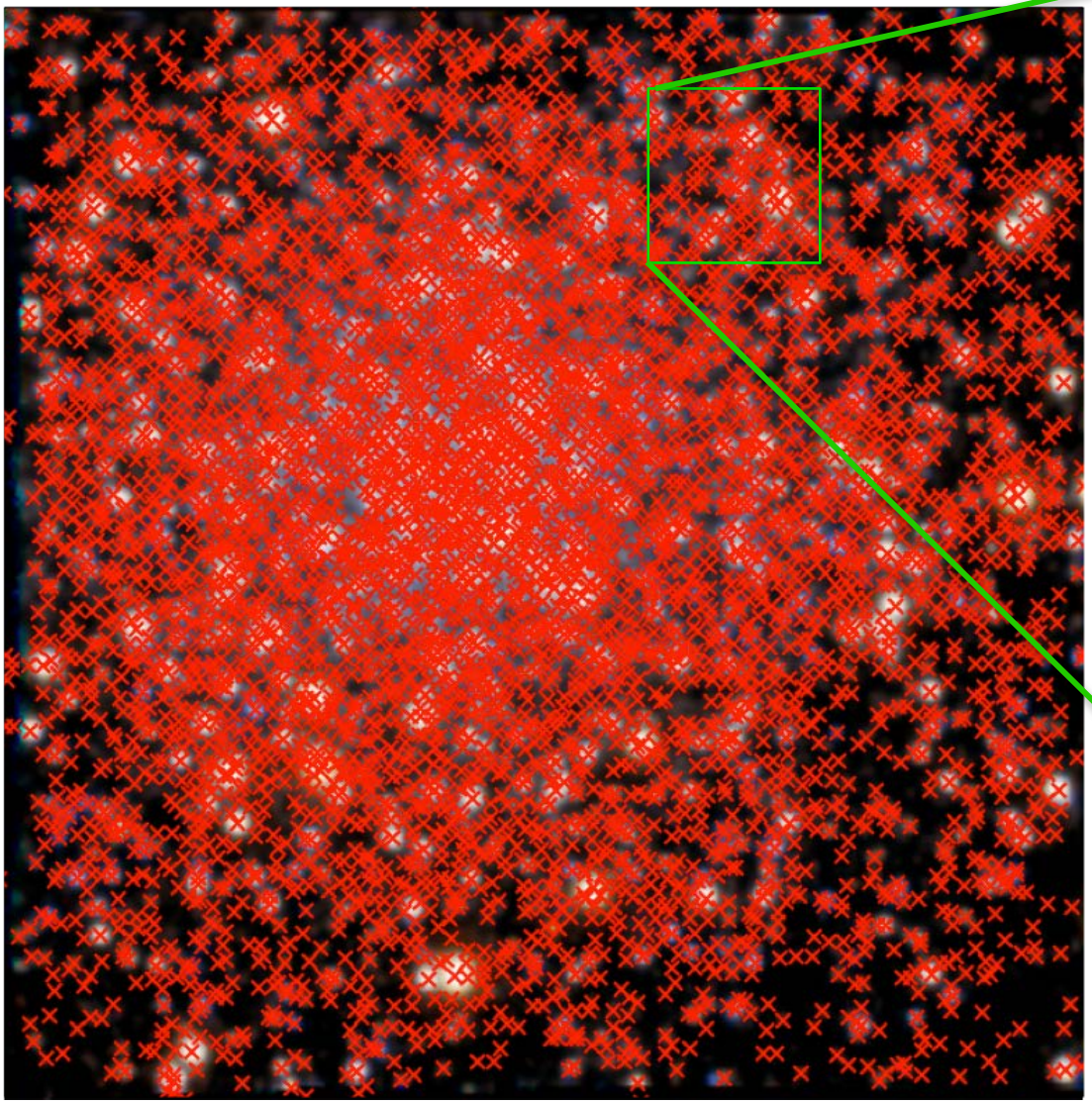

Hβ+OIII
Cont 5300
Hα+NII

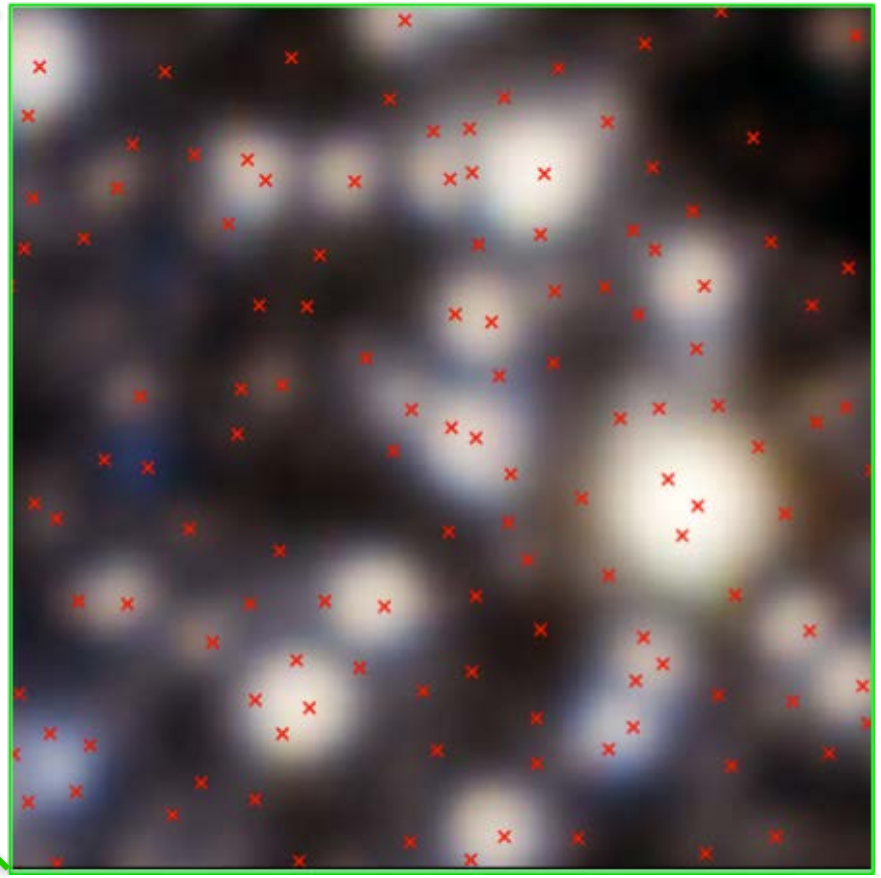




MUSE-Commissioning 1, 07.–22. Feb 2014 – Highlights

➢ Globular Cluster NGC 6266





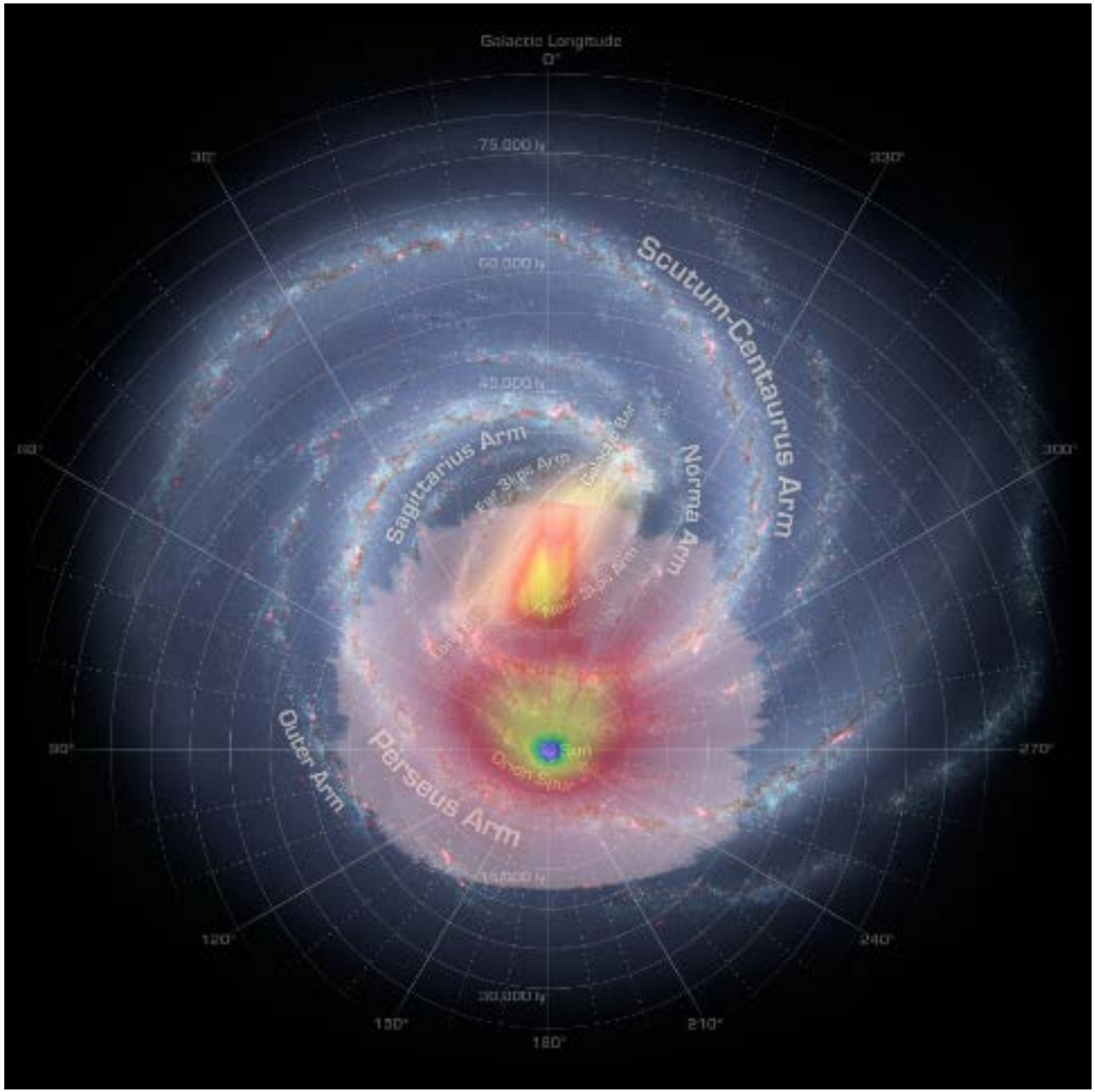
- 5000 spectra in 1 shot
- highest multiplex factor achieved so far

The polar ring galaxy NGC 4650A

Prepared by Peter Weilbacher, AIP & ESO Outreach

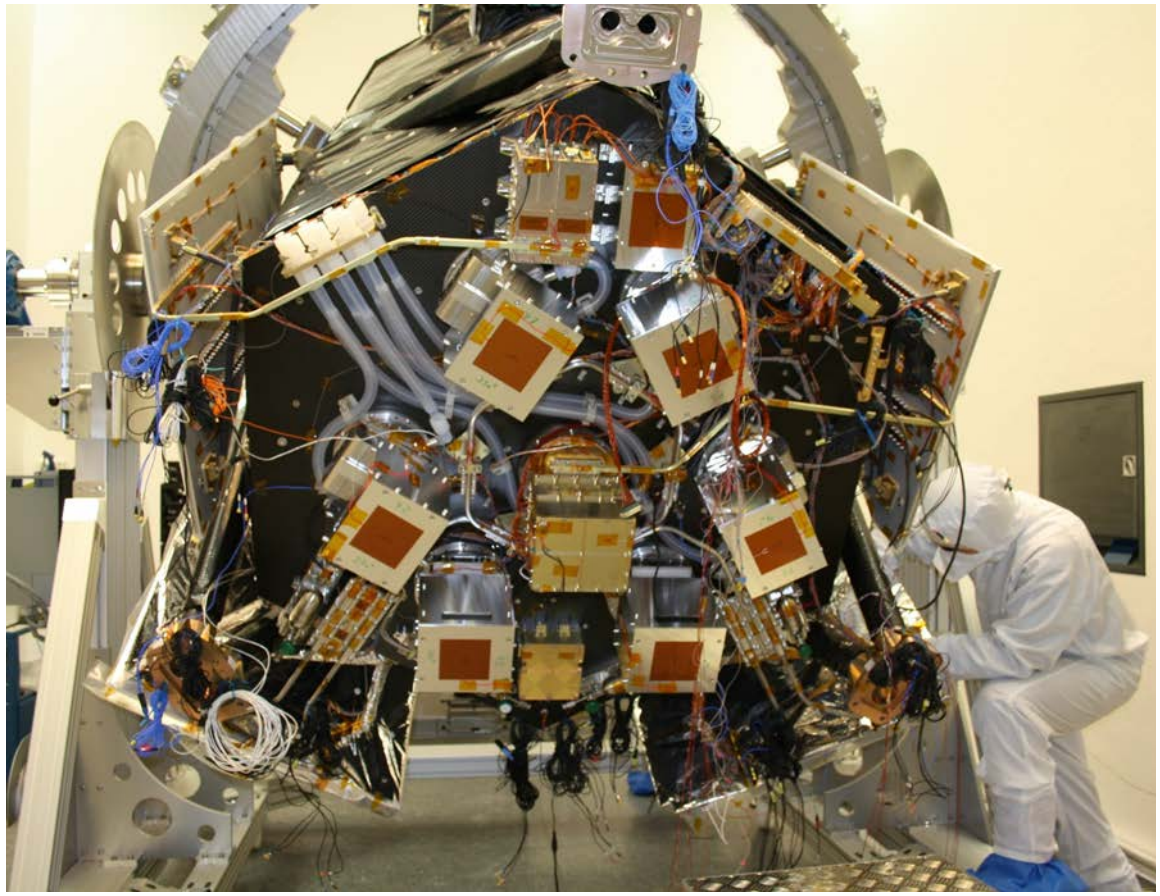
Gaia

The Gaia Sphere



eROSITA on SRG: we have a launch date!

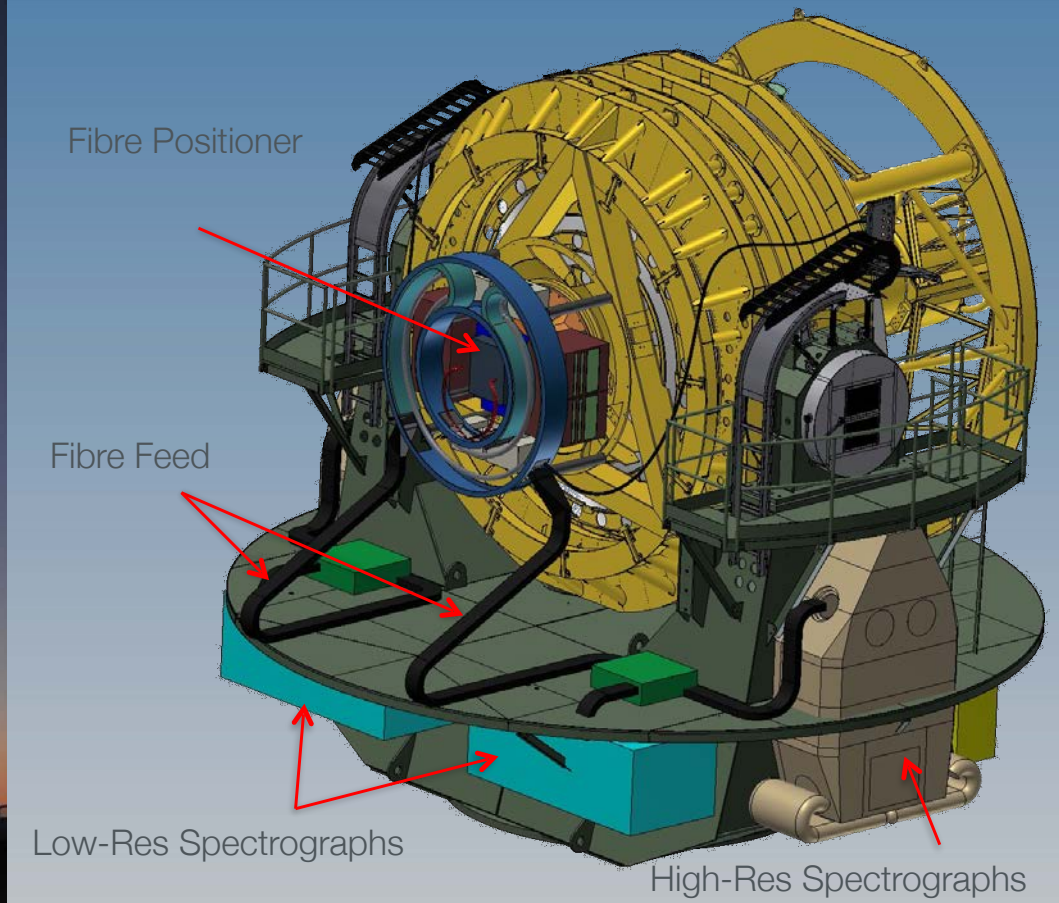
- All sky survey in 0.3-10 keV energy range with imaging telescope
- launch: 26.3.2016
- eROSITA_DE:
  - DLR
  - MPE (lead institute)
  - AIP
  - Bamberg
  - Hamburg
  - Tübingen
- Russian payload ART-XC (IKI)
- Platform & Booster Lavochkin Assoc.
- Launcher: Roskosmos



4MOST – 4m Multi-Object Spectroscopic Telescope

Roelof de Jong (AIP)
4MOST PI

www.4most.eu



VISTA telescope

Instrument Specification

Specification	Concept Design value
Field-of-View (hexagon)	>4.0 degree
Multiplex fiber positioner	~2400
Medium Resolution Spectrographs # Fibres Passband Velocity accuracy	R~5000-8000 1600 fibres 390-930 nm < 2 km/s
High Resolution Spectrograph # Fibres Passband Velocity accuracy	R~20,000 800 fibres 395-456.5 & 587-673 nm < 1 km/s
# of fibers in ⌀=2' circle	>3
Area (5 year survey)	>2h x 16,000 deg
Number of 20 min science spectra (5 year)	~100 million

"Sometimes I wonder if there's more to life than unlocking the mysteries of the universe."