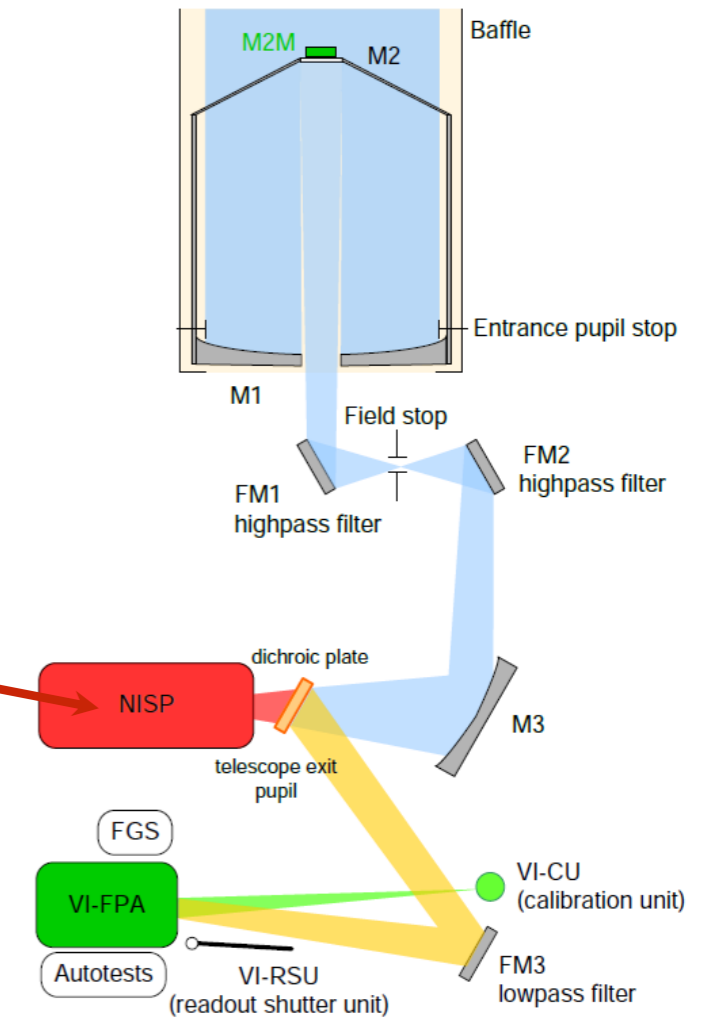
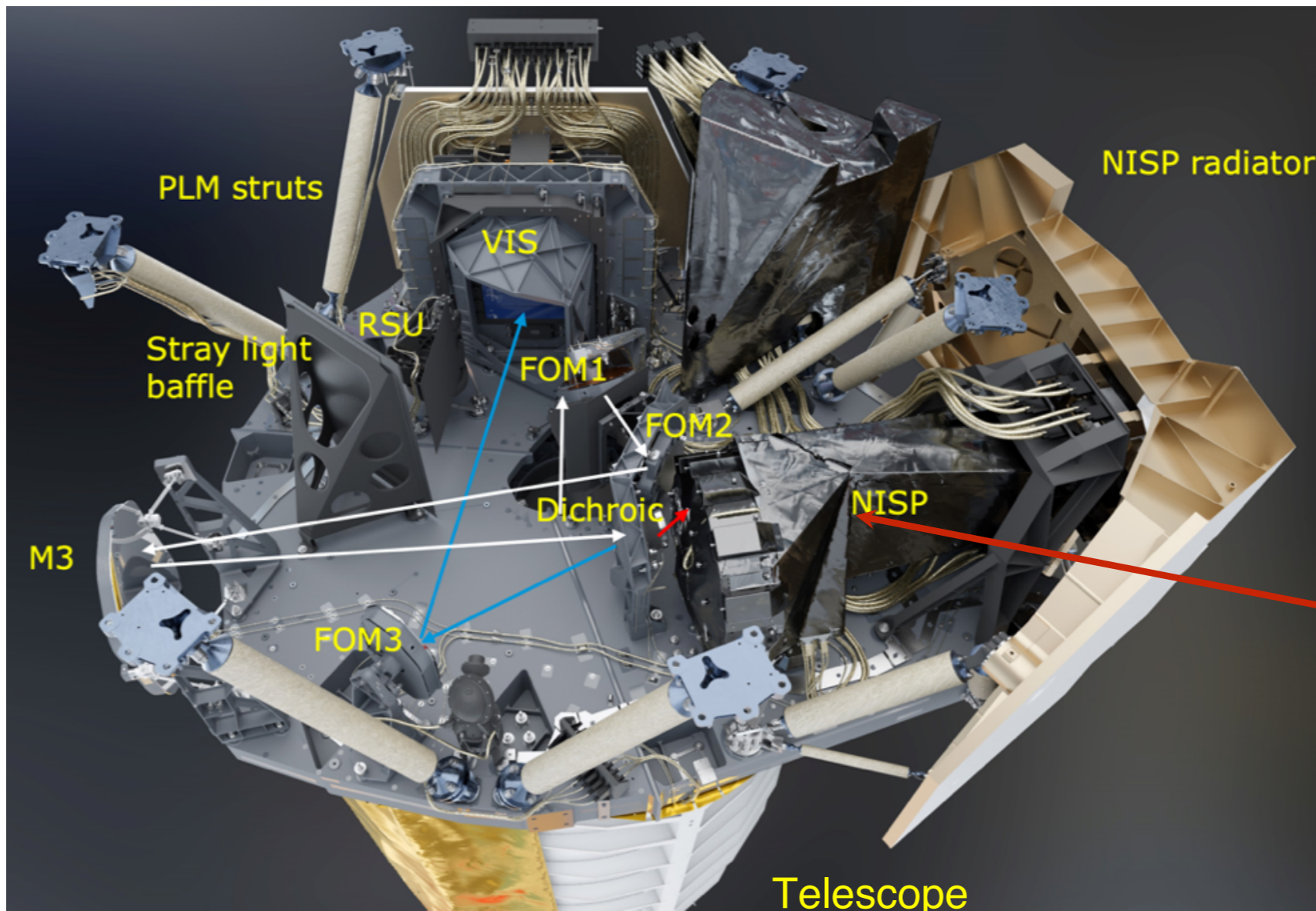




EUCLID

Consiglio di Sezione Consuntivi
INFN Genova, 16 Luglio 2020

Stefano Davini on behalf of Euclid INFN-Ge group

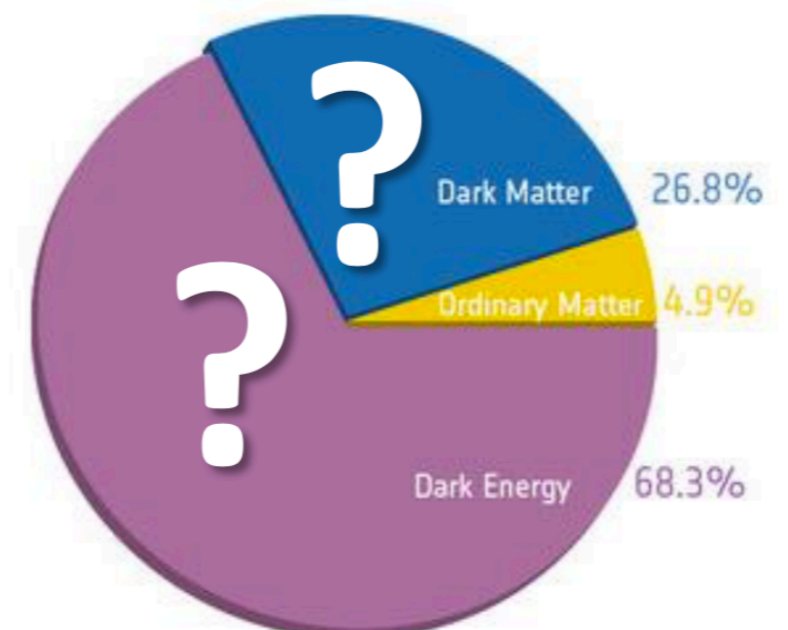


2 strumenti:

Visible CCD (VIS)

Near Infrared Spectro-Photometer (NISP)

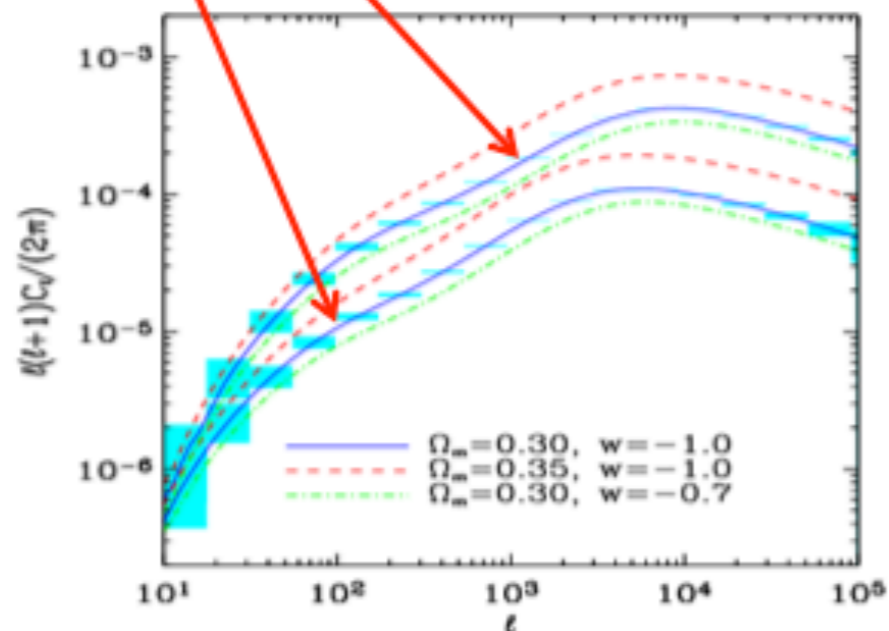
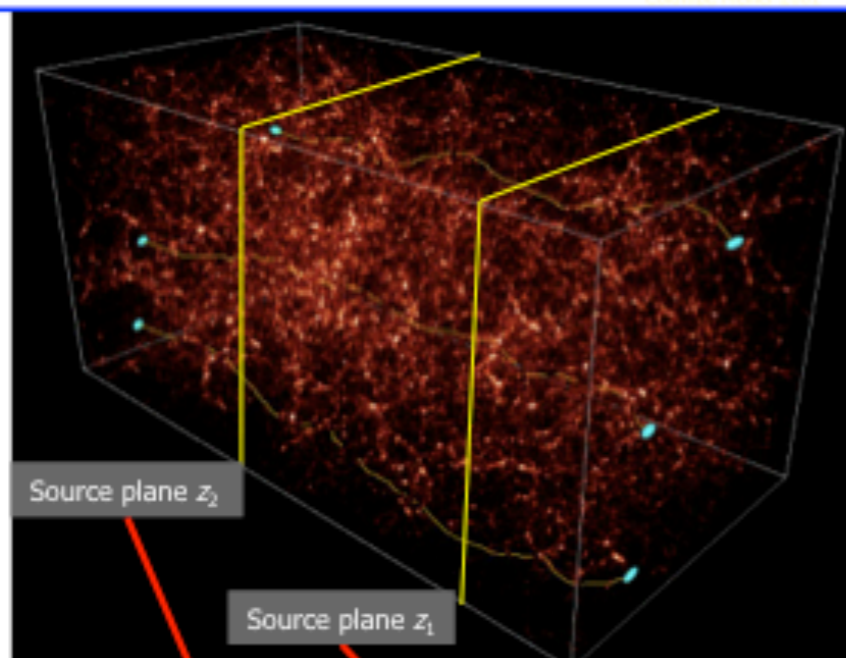
**Misure Weak Lensing e Redshift di 10B galassie,
per investigare dark energy e massa di neutrini**



Le probes principali

Weak Lensing tra $0 < z < 2$

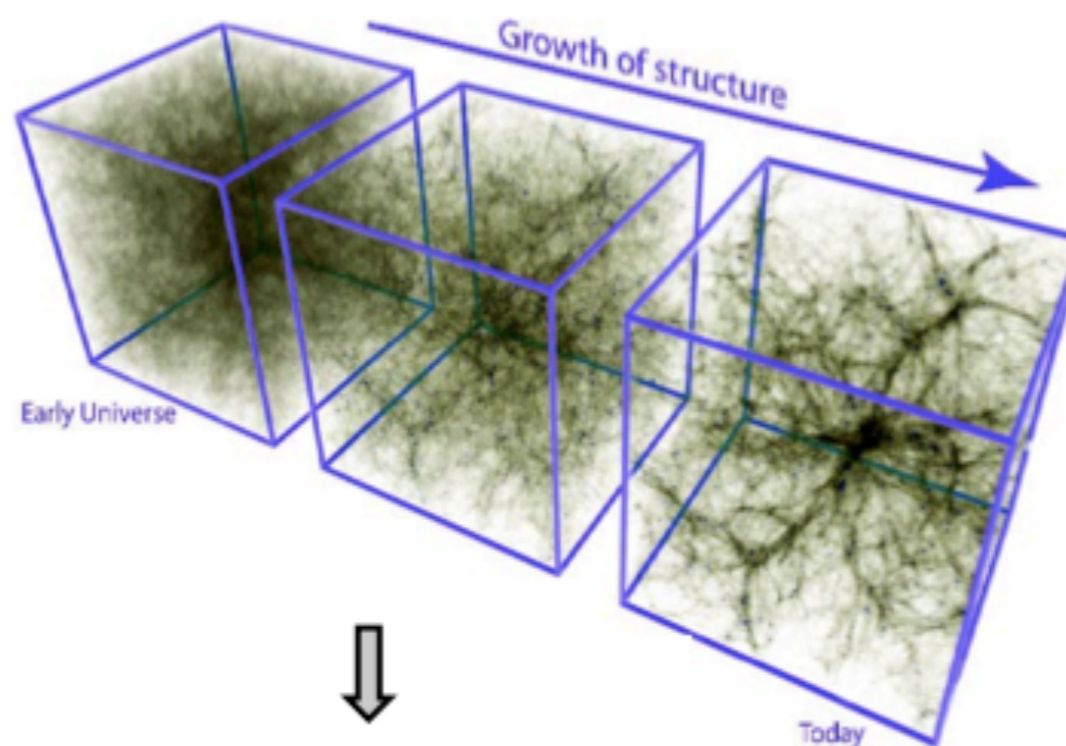
1.5 billion galaxies shapes, gravitational shear and photometric redshifts (u,g,r,i,z,Y,J,H) with 0.05 $(1+z)$ accuracy over 15,000 deg^2



Galaxy Clustering (BAO, RSD) tra $0.7 < z < 1.8$

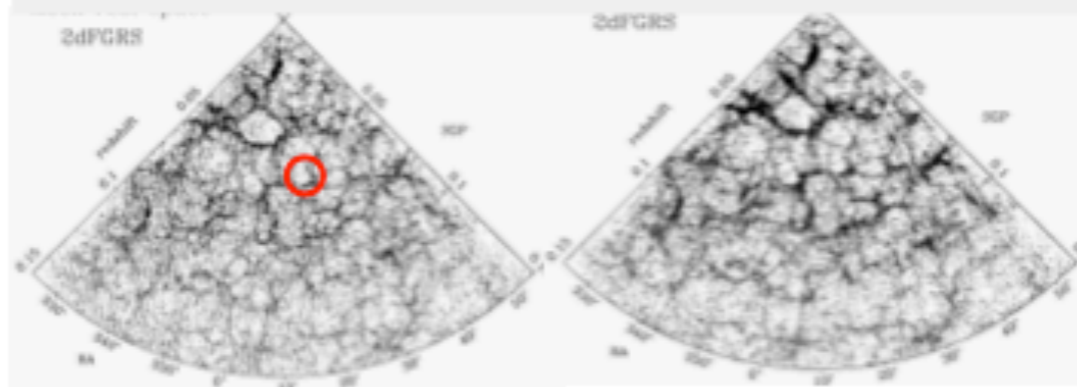
35 million spectroscopic redshifts with

0.001 $(1+z)$ accuracy over 15,000 deg^2



BAO

RSD



Euclid status 2019-20



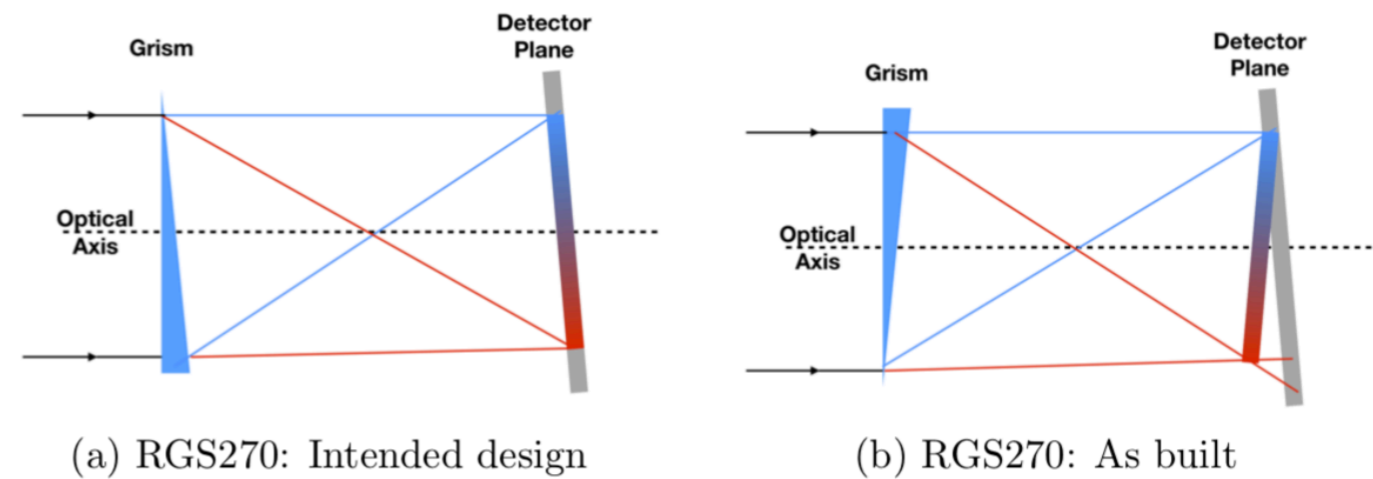
NISP-VIS delivered to industry (Thales/Airbus) for integration in the satellite
NISP performance **better** than expected: higher detector QE, higher S/N
 But **Grism R270 out of specification** (wrong mount):
 however, possible **recovery solution** without HW intervention ...

PSF @ best focus

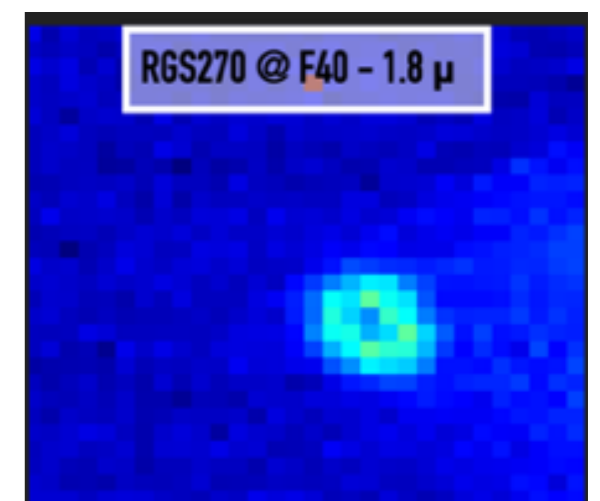
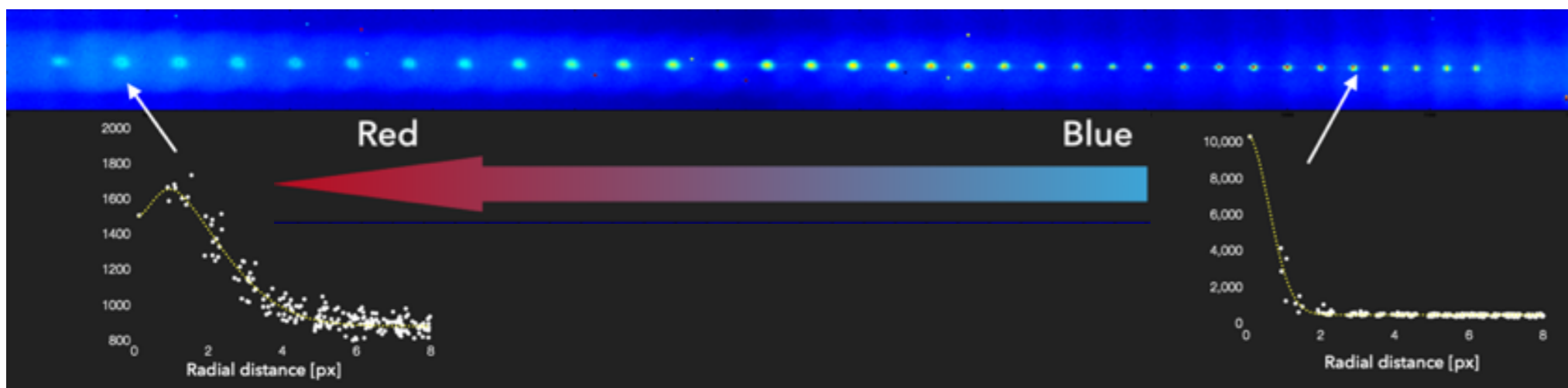
Filter	Wavelength [nm]	Measured (EE50) [arcsec]	Acceptance [arcsec]	Requirement [arcsec]
Y-band	960	0.144	0.16	0.245
	1070	0.143	0.17	0.248
	1170	0.152	0.17	0.250
J-band	1200	0.151	0.18	0.240
	1370	0.160	0.19	0.244
	1500	0.165	0.19	0.250
H-band	1550	0.171	0.21	0.253
	1770	0.175	0.22	0.276
	2000	≈0.172	0.28	0.350

High optical quality

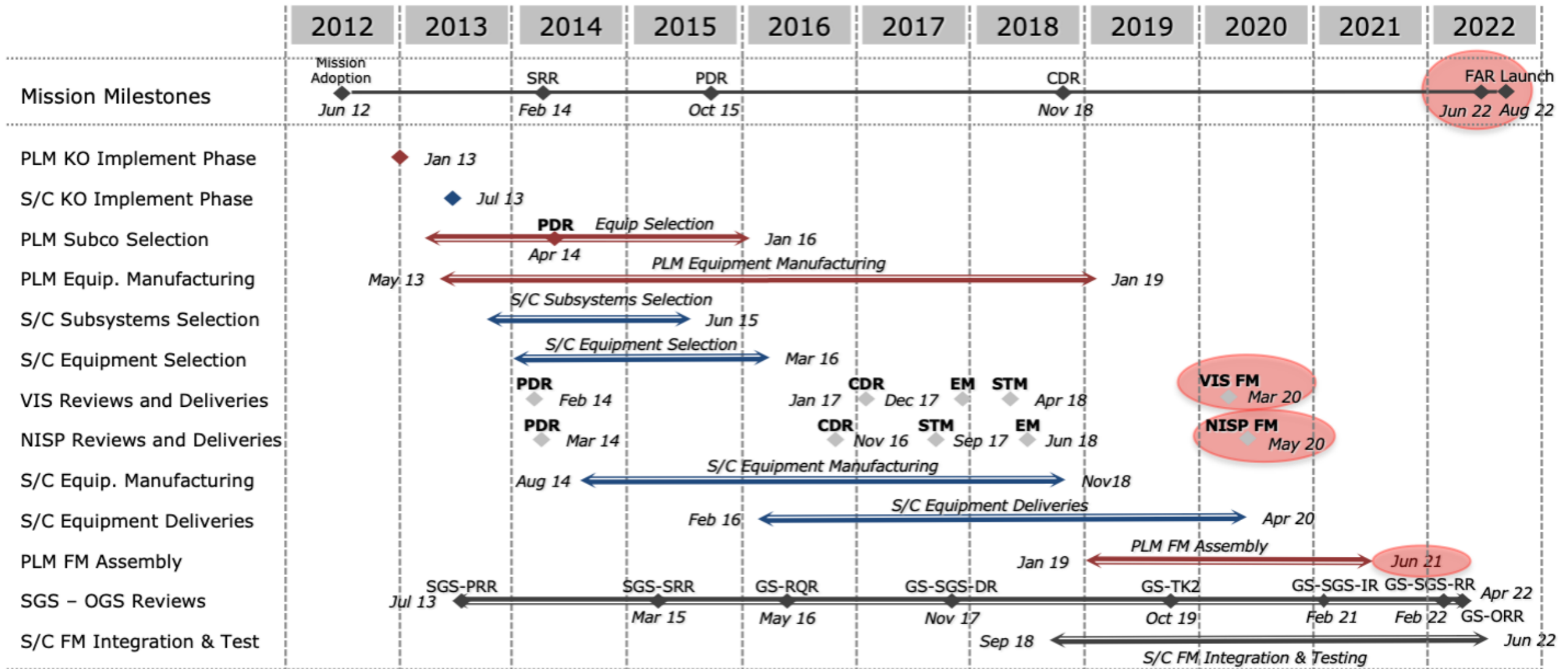
- EE50 measured during NISP ground test is 40 % better than requirement,
- Acceptance: half way between ideal system and requirement



Grism R270: out of focus towards increasing wavelength. At 1800 nm: PSF > 2x larger than requirement



Euclid Schedule: Barcelona 2020



few months delay due to covid-19

if no HW intervention is needed for Grism R270 → launch Aug 2022

Attività INFN Ge 2019-20

- **Sigla** Euclid INFN Genova dal **2019**
- Sviluppo **Unit Test** del SW della **Instrument Control Unit** di **NISP** (responsabilità Genova)
 - Critical Design Review (2019), Qualification Review (2020)
- **Forecast** parametri cosmologici e massa dei neutrini
 - **Void-Lensing** cross-correlation (resp. GE, PhD Thesis M.Bonici)
 - **Spettro-Photo** cross-correlation (PhD Thesis L.Paganin)
- **Simulazioni** e ricostruzione **spettroscopia** (OU-SIM, OU-SIR)
 - Contributo a studio soluzione per **Grism R270**
 - Co-Responsabilità **calibrazione** in volo (flusso, lunghezza d'onda)
- **Calcolo:** set up cluster INFN Zefiro a Pisa per utilizzo intensivo in Euclid
- **Legacy:** coordinazione per richieste simulazioni da parte WG legacy science

Anagrafica e richieste

Nome	ruolo	FTE (tot 3.6)
Marco Bonici	dottorando	1
Silvia Caprioli	post-doc	0.3
Stefano Davini	ric. INFN resp. loc	0.5
Sergio Di Domizio	RTD UniGe	0.3
Luca Paganin	dottorando	1
Gemma Testera	primo ric. INFN	0.3
Silvano Tosi	prof ass. UniGe	0.2

Non sono previste richieste ai servizi locali