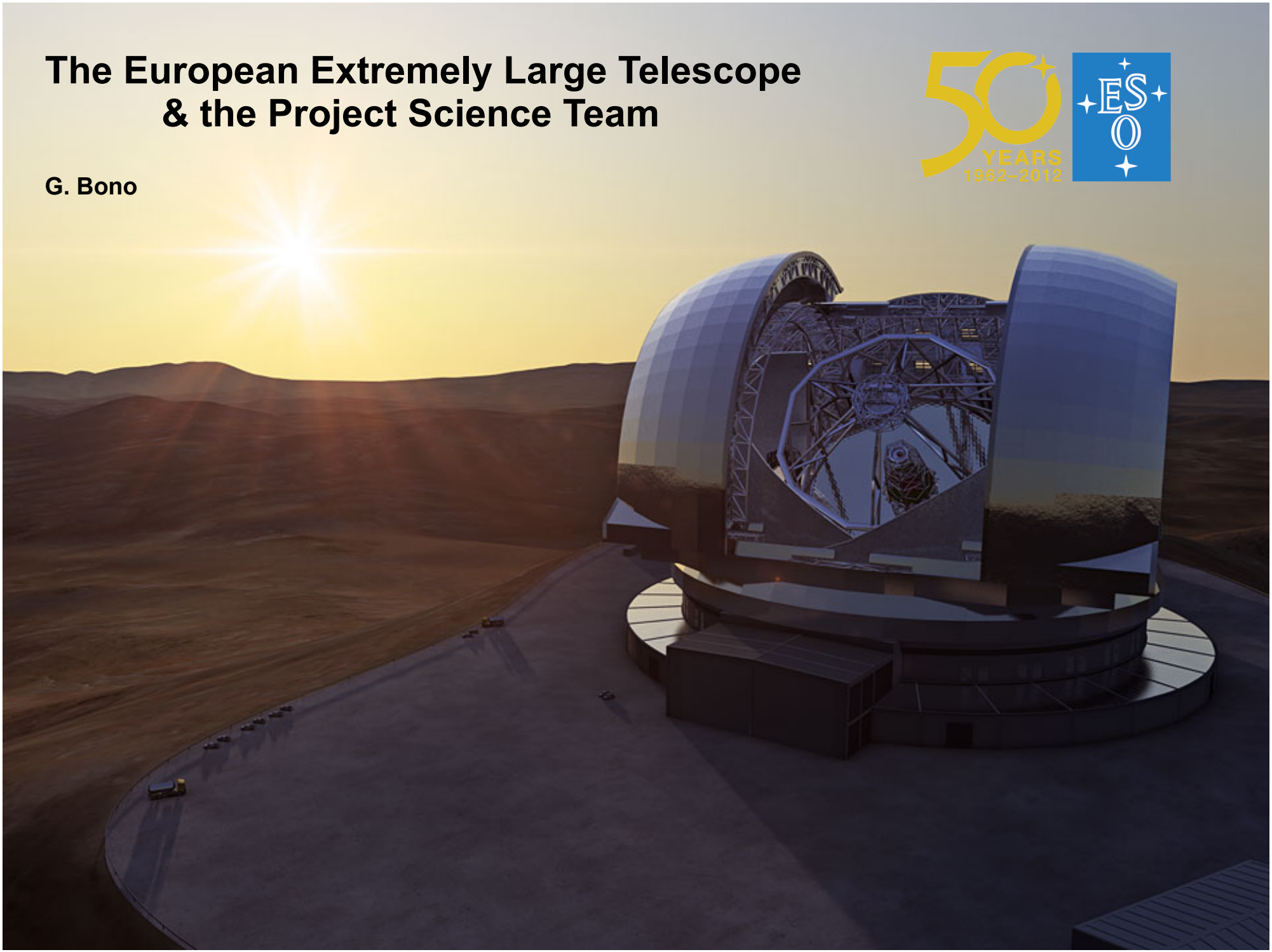
The European Extremely Large Telescope & the Project Science Team

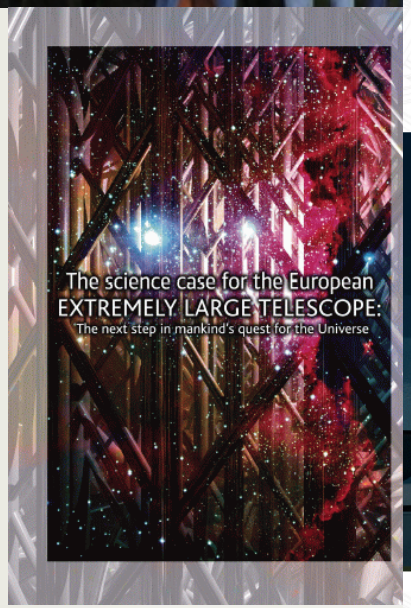
G. Bono

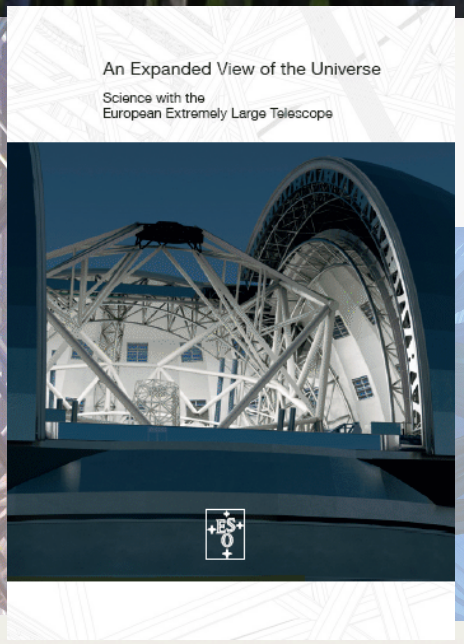


Science Case Development

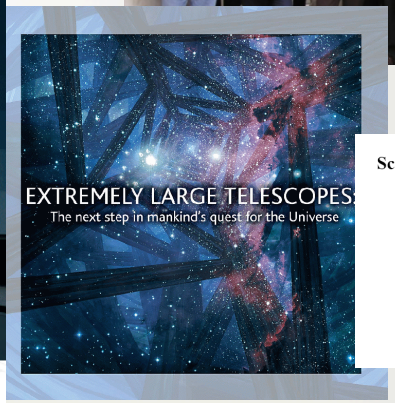
Florence '04

Elba '08
Vienna '08
Garching '09
Edinburgh '09
Cambridge '09
Porto '09
London '10
Garching '10
Crete '10
Ischia '11
Garching '13





Marseille '03



Science Cases and Requirements
for the ESO ELT

Report of the ELT Science
Working Group

30 April 2006

Marseille '06

E-ELT Science Working Group

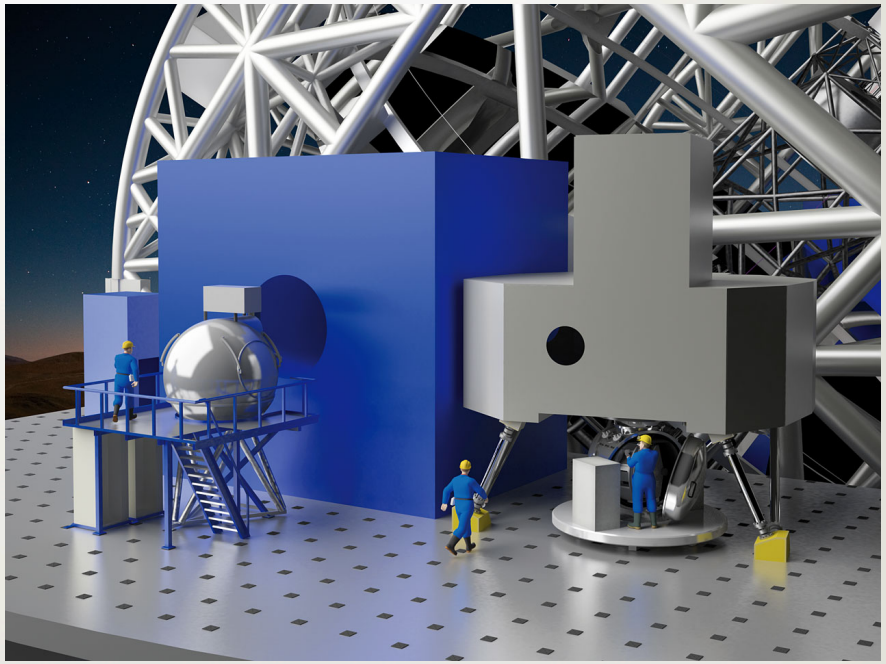
Isobel Hook (Chair)
Jaqueline Bergeron
Andrea Cimatti
Fernando Comeron
Jose Espinosa
Sofia Feltzing
Wolfram Freudling
Raffaele Gratton
Martin Haehnelt
Hans-Ulli Kaeufl
Matt Lehnert
Christophe Lovis
Piero Madau
Mark McCaughrean
Michael Merrifield
Rafael Rebolo
Piero Rosati
Eline Tolstoy
Hans Zinnecker

<u>With thanks to previous members:</u>
Arne Ardeberg
Willy Benz
Robert Fosbury
Marijn Franx
Vanessa Hill
Bruno Leibundgut
Markus Kissler-Patig
Didier Queloz
Peter Shaver
Stephane Udry

Dec 2005: ESO SWG formed
Science case re-evaluated for 30-60m (April 2006)
ESO SWG merged with OPTICON activity
SWG disbanded Feb 2012

Instrument Roadmap

- Following recommendations by the SWG and STC, 2 first-light instruments have been identified, kick-off: 2012.
- Next group (ELT-3, 4 and 5) broadly identified. Scientifically equal and so sequence is determined by technical readiness. Kick-off: every two years.
- Planet camera and spectrograph on separate track.
- Flexibility is maintained by including an as yet unspecified instrument (ELT-6).
- All phase A studies remain in the pool of possible instruments.

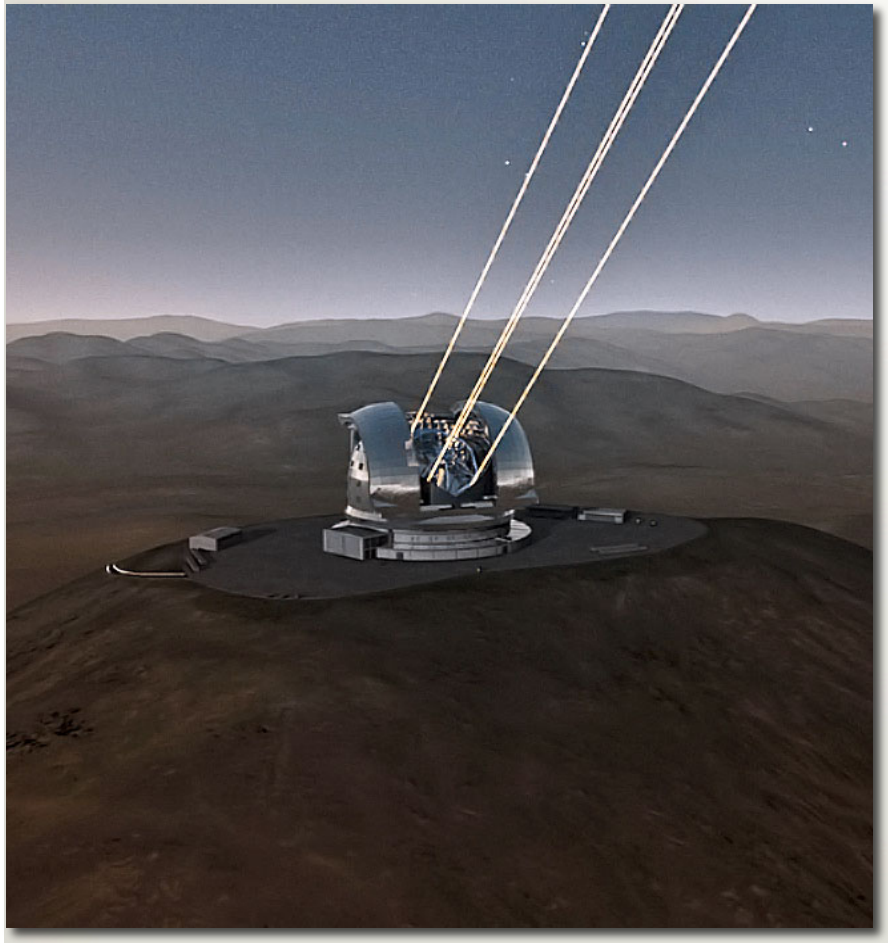


Instrument Roadmap

Year	ELT-IFU	ELT-CAM	ELT-MIR	ELT-4 (MOS or HIRES)	ELT-5 (MOS or HIRES	ELT-6	ELT-PCS
2012	Decide science requirements, AO architecture.		VISIR start on-sky	Develop science requirements for MOS/HIRES			Call for proposals for ETD
2013			TRL Review	Call for proposals for MOS/HIRES			
2014							
2015				Selection ELT-MOS/HIRES		Call for proposals	
2016							
2017							TRL check
2018							TRL check
2019						Selection	TRL check
2020							TRL check
2021							TRL check
2022 Tel technical first light							
	Pre-studies taking the form of phase A or delta-phase A work and/or ESO-funded Enabling Technology Development (ETD)						
	Decision point						
	Development of Technical Specifications, Statement of Work, Agreement, **Instrument Start.**						

E-ELT Project Science Team

Established May 2012:



Giuseppe Bono (Chair)
Jordi Cepa
Gael Chauvin
Thérèse Encrenaz
Roland Gredel
Tom Herbst
Isobel Hook
Christoph Keller
Oleg Kochukhov
Rubina Kotak
Carlos Martins
Didier Queloz
Roberto Ragazzoni
E-ELT Project Scientist (J. Spyromiglio)
E-ELT Instrument Scientist (S. Ramsay)

E-ELT Project Science Team

PST + ESO representative + Scientific PIs of approved instruments

J. Liske

P. Padovani

Solar & Extra-solar planets	Stellar populations	Galaxies & cosmology	Technology
G. Chauvin	G. Bono	I. Hook	J. Cepa
T. Encrenaz	R. Gredel	R. Kotak	T. Herbst
D. Queloz	O. Kochukhov	C. Martins	R. Ragazzoni
C. Keller			

Reports: Project Scientist
Adives: Project Manager

NO DECISION

E-ELT Project Science Team

The PST is an advisory working group that supports the E-ELT programme during the construction phase.

Twelve scientists, solicited in the ESO community appointed by the Programme Scientist for renewable terms of 3 years (chair for 2 years).

The main duties are:

- → refine, as necessary, Top Level Requirements, including refining the science requirements and objectives for the telescope, the instrumentation, the operations and other scientific aspects of the project;
- → develop the instrumentation plan for the E-ELT and set the scientific priorities for the instrument procurement;
- → develop a science perspective on any major cost/schedule/science trades;
- → participate in the E-ELT reviews to assist the E-ELT project in decisions as they relate to scientific objectives and performance of the programme;
- → participate in the refinement of the project science plans and the philosophy for defining and conducting the science programme;
- → disseminate actively the information and explain the goals of the E-ELT to the ESO community.

E-ELT Project Science Team

We are in the process to release the TLRs for the first light instruments:

1-- E-ELT CAM

2-- E-ELT IFU

After the February meeting we will start to review the TLRs for the instruments

3 – E-ELT MIR

4 – E-ELT HIRES

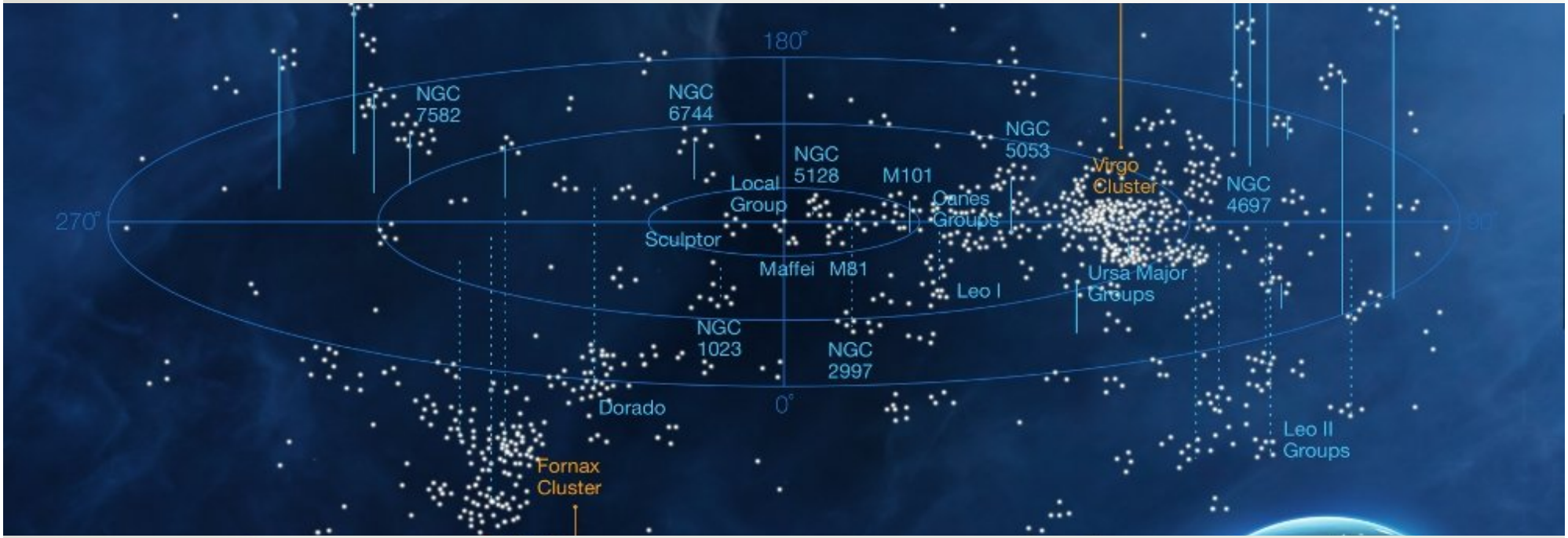
5 – E-ELT MOS

A New Paradigm

SCIENCE FIRST

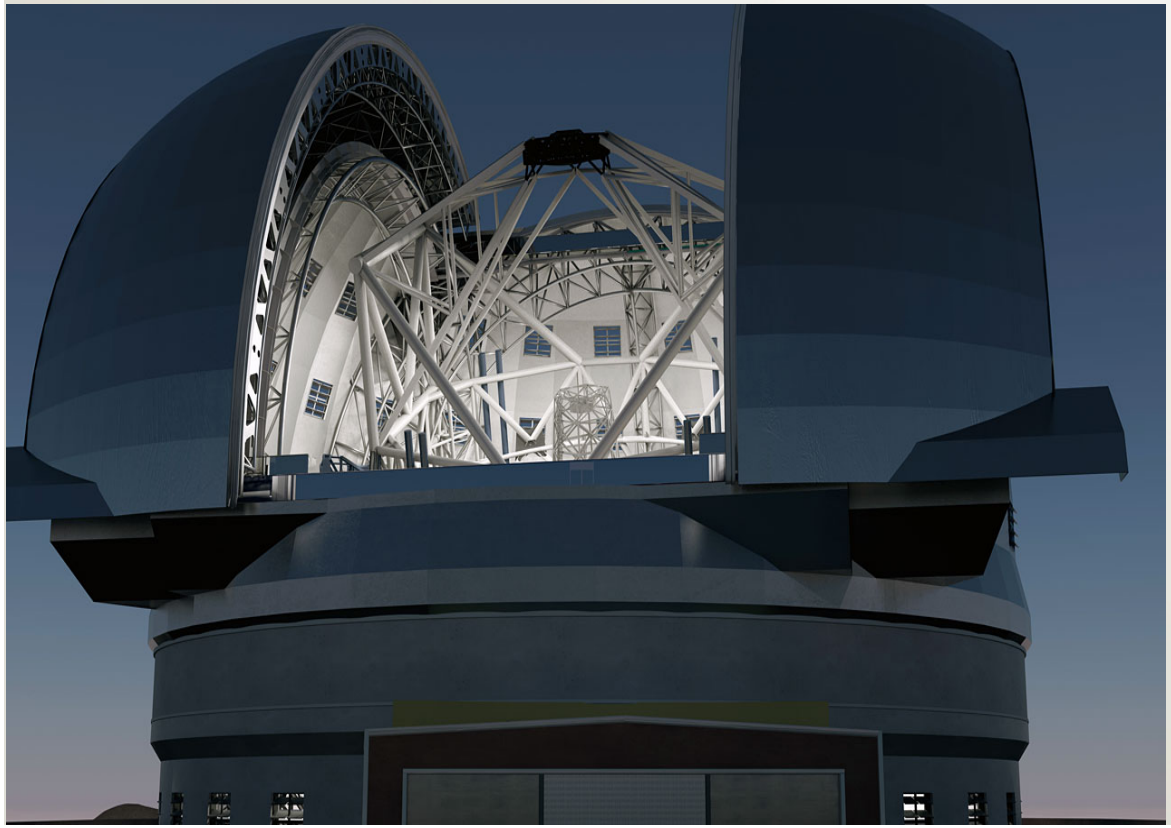
Resolved stellar populations → galaxy evolution

Precise photometry and spectroscopy of resolved stellar pops for a wide range of stellar systems:

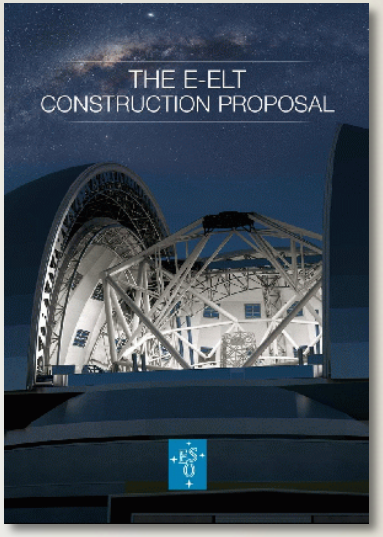


Summary
This is going to be fun!!!

- **The E-ELT will be a quantum jump in science and in technology**
- **As the largest optical-IR telescope in the world for decades to come it will transform many areas of astronomy**
- **Between the VLT and the beginning of E-ELT [Golden Age]**



More information?



The science users web pages:
www.eso.org/sci/facilities/eelt/

The E-ELT Construction Proposal:
www.eso.org/sci/facilities/eelt/docs/e-elt_constrproposal.pdf

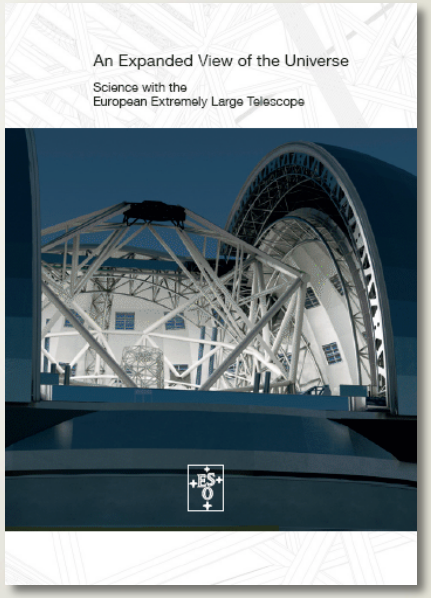
The E-ELT Science Case:
www.eso.org/sci/facilities/eelt/science/doc/eelt_sciencecase.pdf

The E-ELT Design Reference Mission:
www.eso.org/sci/facilities/eelt/science/doc/drm_report.pdf

The public web pages:
www.eso.org/public/teles-instr/e-elt.html

Brochures, Posters, etc:
www.eso.org/public/products/brochures/

Gallery:
www.eso.org/public/images/archive/category/e-elt/



Set aside