



SIXTH FRAMEWORK  
PROGRAMME

European Commission

Community Research



# European Large Telescopes

As astronomy progresses into the 21<sup>st</sup> century, new facilities will be needed to advance humanity's knowledge of the Universe. In the foreseeable future, astronomers will need access to telescopes much larger than those available today. Recognising this, there is already widespread support for the development of a European extremely large telescope. OPTICON has sponsored an FP6 proposal to establish a design study for such a facility. This study will address issues such as the size of the telescope, which would be in the 50–100m range, its affordability, its scientific goals and the time scales for its development and construction.

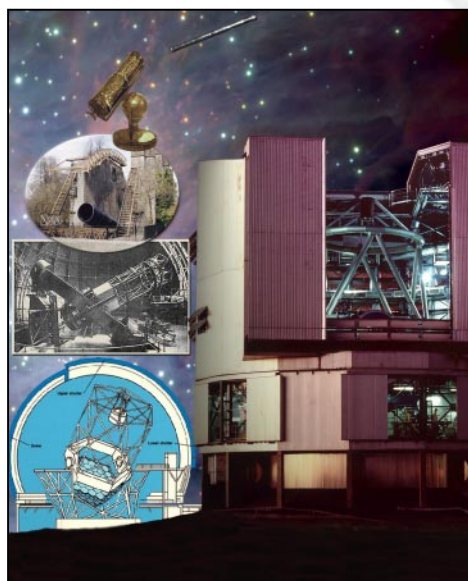
We live in a truly golden age of discovery in astronomy. Almost every class of object astronomers study today has been discovered in our lifetimes. Why is this so?

There are two dominant reasons, technology and people, but only one explanation: efficiency. The astronomical community is at most ten times larger than it was a generation ago. This is a significant, but not huge, change. It is new astronomical telescopes which have provided the real advance, with both a very considerable increase in mirror collecting sizes and a vast increase in detector area, detector quantum efficiency, sensitivity, and image quality.

The European Southern Observatory (ESO) Very Large Telescope project has established Europe as a world leader in optical-infrared astronomy. Europe's 50% share in ALMA, the next major ground-based radio observatory, will extend that world-class status. A future large ground-based optical-infrared telescope must retain Europe's hard won scientific leadership.

The European Large Telescope (ELT) design study will optimise design of the next large optical-infrared telescope. A primary science goal is for the ELT to complement, and operate in parallel with, new space and ground-based facilities (NGST and ALMA) whose construction has already started, and which will be in operation before 2015.

Following OPTICON-sponsored meetings involving all the projects and national agencies currently active in ELT design, the parties have resolved to support a single proposal to the European Union FP6 funding programme.



*An illustrative view of the development of astronomical telescopes. From the top left, the telescopes of Galileo, Newton and Birr Castle, reflecting European technological innovation and leadership in astronomy until the twentieth century. Mt Wilson and the Keck telescopes are typical of the dominance of telescope technology by the private US observatories through the 20<sup>th</sup> century. Finally, the European VLT sets the standard of observing excellence at the start of the 21<sup>st</sup> century*

## Our Mission

The OPTICON Infrastructure Coordination network brings together all of Western Europe's owners and operators of large observatories and data centres. Our goal is to identify opportunities where greater progress can be made by collaboration than by competition, and to take unified actions to achieve those agreed goals.

## Contacts

Prof Gerard Gilmore  
Chairman of OPTICON  
Institute of Astronomy  
University of Cambridge  
Madingley Road  
Cambridge CB3 0HA  
United Kingdom  
Telephone: + 44 (0) 1223 337507  
E-mail: [gil@ast.cam.ac.uk](mailto:gil@ast.cam.ac.uk)

Design Study Coordinator  
Dr Roberto Gilmozzi  
European Southern Observatory  
Alonso der Cordova 3107  
Santiago 19  
Chile  
Telephone: 00 56 5543 5459  
E-mail: [rgilmozz@eso.org](mailto:rgilmozz@eso.org)

Web: [www.astro-opticon.org](http://www.astro-opticon.org)

**OPTICON** - The Optical  
Infrared Coordination Network  
for Astronomy

