Project Overview

Gerry Gilmore
OPTICON Coordinator
OPTICON
EC Optical InfraRed Coordination Network for Astronomy

- **FP5** (2000-2004) Start-up networking
- **FP6** (2004-2008) 47 partners €19M (5 years)
- **FP7-1** (2009-2012) 30 partners €10M (4 years)
- **FP7-2** (2013-2016) 26 partners €8.5M (4 years)
- **H2020** (2017-2020) 32 partners €10M (4 years)
- Partners: funding agencies, hardware R&D groups, observatories, industrial partners
- Activities: observing access, technology R&D, networking / community development

Coordinator: Prof Gerry Gilmore
Project Manager: Dr Gudrun Pebody
Project Scientist: Dr John Davies (ATC Edinburgh)
Stable experienced management team – will evolve to remaining EC for FP9
The international view: our context

• The European OIR Community strength

2015 US National Academy of Sciences Review “Optimizing the U.S. Ground-Based Optical and Infrared Astronomy System”: Its relatively stable funding line over several years enables ESO to plan efficiently for future instruments, such as the SPHERE spectropolarimeter with high contrast Adaptive Optics […] its instruments are developed in a coordinated way, with most built by consortia of institutes. The ESO community has thus maximized its combined resources by having a strong support network of partnerships for instrument development and small and medium telescope operations, with ESO concentrating on operating and upgrading the largest facilities. The E-ELT, a planned 39-meter telescope, is expected to have first light in the early 2020s.

• OPTICON’s contribution: develop critical subsystems

OPTICON is the EC-funded coordination network which supports the multi-national partnerships on which the success of this model rests. OPTICON support in previous FP programmes prototyped and raised to operational level the critical Adaptive Optics (AO) systems in the SPHERE instrument mentioned above. OPTICON’s Trans National Access (TNA) system underlies the “support network for small and medium telescope operations” noted. OPTICON’s networking provides the community coherence which leads to coordinated instrument development, future planning, and builds the key consortia of institutes. ESO, nationally funded, complemented by the international technology development, community building and trans-national access enabled by EC funding has created this balanced excellent system. In H2020 OPTICON will both complete and innovate activities in all three critical areas, extend its proven success in innovation implementation and continue longer-term strategic planning. Without H2020 EC support all this excellence would withdraw inside national funding silos and Europe’s success would be at great risk.
SPHERE @ VLT: OPTICON RTD provided ~30% of the AO technology
OPTICON has many activities, but all are focussed on a small number of themes:

- Early support for next generation astronomical instruments
- Community development and sustainability
- Trans National Access – both classical and distributed

**JRA activities - four themes**

**Theme one:**

3 JRA activities plus one network. R&D in adaptive optics and fast low-noise detector and camera systems for AO sensing and science. Supports ESO Paranal and E-ELT future instruments, with wider impact (US). Builds and retains a diverse community beyond the specific instrument teams.

**Theme two:**

2 JRA activities focussing on innovative manufacturing capabilities to make future instruments smaller and of higher performance.
JRA activities - four themes

Theme three:
2 JRA activities focussed on applications of novel materials. Includes a range of photo-sensitive materials and development of new applications in spectroscopy of photonics.

Theme four:
One JRA and complementary network. Supports the optical/IR interferometry community with VLTI optimisation (data processing, user support) and longer-term strategic planning.

Community development and sustainability

Active networks in adaptive optics, interferometry, time-domain astronomy
- Not just meetings. These networks run active programmes: CANARY,
- Gaia Alerts follow-up, VLTI regional support centres

Training schools in observations, instrument design, photonics applications, high-time resolution astronomy, adaptive optics, interferometry, multi-messenger astronomy – all building forward-looking communities
A refreshed telescope suite with distributed and robotic facilities

www.astro-opticon.org

All time allocated on scientific merit via Common Time Allocation Committee
Primary goal is to ensure the next US Decadal review still looks across to Europe as the most successful way to support world-leading astronomy.

The OPTICON Technology & Innovation Network engages industrial and astronomy partners across Europe in a series of workshops and technology road-mapping activities, thus stimulating scientific progress and economic development.

Consistent efforts to explore SME spin-out possibilities. Knowledge transfer with our industry partners (First Light Imaging, ONERA, TNO), with e2v, and with the several other SMEs affiliated explicitly with the workpackages (Optoscribe, Janssen Precision Engineering, ALPAO, TTI GmbH, Teem Photonics, Covestro) is an integral aspect of this activity.