



High-performance Deformable Mirrors for Astronomy

OPTICON Innovation Network
Workshop

Delft 21/22 Feb 2013

Future astronomical instrumentation on large optical/infrared telescopes

- Will require higher-performance deformable mirrors to enable new modes of adaptive optics
 - multi-object AO
 - extreme AO
 - improved performance in the optical regime
- To satisfy these requirements we will need:
 - high-density
 - large stroke DMs (and sometimes both together)
 - improved linearity and repeatability
 - the very best performances from:
 - control electronics
 - position and wavefront sensing
 - metrology.

Aims

- Discuss the requirements for DMs in current and future telescopes and instruments
- Review current state-of-the-art
- Explore innovative technology developments
- Point the way towards the DMs of the future

Outcomes

- Input to OPTICON Technology Roadmap
- Identify promising new technologies in Europe
- Note where interesting developments are occurring outside Europe
- Suggest future projects and collaborations, including for applications outside astronomy
- Explore potential funding mechanisms

Programme: Day 1

Day 1 - February 21 st 2013		
13:00-14:00	Lunch at Hampshire Hotel	
	Chairman - Colin Cunningham	
14:00-14:05	Colin Cunningham	Aims & objectives of the meeting
14:05-14:15	All participants	Round table: Who's who?
14:15-14:20	John Davies	A short overview of OPTICON
14:20-14:40	Norbert Hubin	DM requirements for ELT-VLT and a review of DMs already used by ESO
14:40-15:00	Teun van den Dool	Electromagnetic DM technology to meet future AO demands
15:00-15:20	Noah Schwartz	Developments of high-density piezoelectric DMs with hysteresis control
15:20-15:40	Coffee Break	
	Chairman - TBD	
15:40-16:00	Andre Preumont	Segmented DM for AO
16:00-16:20	Jean-Luc Beuzit	Opticon workplan for deformable mirrors (2013-2016)
16:20-17:20	Colin Cunningham	Discussion
17:20-18:00	Visit of TNO	
19:00	Workshop dinner in Delft	

Volunteers for session chairs?

Programme: Day 2

Day 2 - February 22 nd 2013		
	Chairman - TBD	
09:00-09:20	Dirk Soltau	DMs in Solar Physics
09:20-09:40	Tim Morris	Requirements that tomographic AO (MOAO/LTAO) places on DMs based on CANARY experience
09:40-10:00	Stefano Bonora / Tommaso Occhipinti	High resolution wavefront control with photocontrolled deformable mirror
10:00-10:20	Gleb Vdovin	New concept for 50+k DM
10:20-10:40	Coffee Break	
	Chairman - TBD	
10:40-11:00	Jean-Christophe Siquin	Specifications and technology developments for next generation of High Order Deformable Mirrors at Cilas
11:00-11:20	Jean-Luc Beuzit	Tip-tilt mirror development at LESIA
11:20-11:40	Roberto Biasi / Daniele Gallieni	Contactless technology for large deformable mirrors
11:40-12:40	Mark Casali	End of meeting discussion: Requirements, state of the art, next step, funding and other application areas
12:40	Lunch at Hampshire Hotel	

Notices

- Emergencies – assembly point in car park
- Email and Mobile Phones off please!
- Dinner – thanks to TNO
Redjeki
Choorstraat 50-56
2611 JH Delft
(in Delft Centrum)
- **Hotel Bill**
 - Room and meals covered by Opticon
 - Other expenses are your responsibility
- Many thanks to TNO for their help!