



SEP 25-30,  
**2011**

**AO FOR ELT 2**

VICTORIA, BC,  
CANADA

SECOND INTERNATIONAL CONFERENCE ON ADAPTIVE OPTICS FOR EXTREMELY LARGE TELESCOPES

**Sunday 25 September**

20:00 Welcome cocktail

**Monday 26 September**

08:45 Welcome from chairs

**Astronomy with AO**

- 09:00 *Pushing the limits of astronomy with AO on ELTs (invited)* Simard L.
- 09:30 *Challenges for Doing Quantitative Astronomy with ELTs (invited)* Schoeck M.
- 10:00 Science Driven AO Performance Metrics Davies R.
- 10:20 NFIRAOS High-Contrast Exoplanet Imaging Capabilities Marois C.
- 10:40 Break
- 11:10 The extragalactic heritage of the Layer-Oriented MAD at VLT. Falomo R.
- 11:30 Testing the limits of AO: near diffraction limited astronomy in the red optical Tecza M.
- 11:50 Science Requirements for EAGLE (E-ELT) Cuby J.-G.
- 12:10 Lunch

**AO instruments and pathfinders**

- 13:30 *The TMT Adaptive Optics Program (invited)* Ellerbroek B.
- 14:00 *Toward the Adaptive Optics for the 40 m class European ELT (invited)* Hubin N.
- 14:30 *Review of the GMT AO program (invited)* Bouchez A.
- 15:00 Advancements in adaptive optics technology: micro deformable mirrors and laser guidestars for the next generation of extremely large telescopes Gavel D.
- 15:20 Poster session
- 16:20 *LBT AO on-sky results (invited)* Esposito S.
- 16:50 *Towards MOAO on the ELT: the CANARY program (invited)* Gendron E.
- 17:20 MOAO design, specificities and performance for EAGLE, the high resolution multi-object spectrograph for the E-ELT Fusco T.
- 17:40 RAVEN, a Multi-Object Adaptive Optics technology and science demonstrator Andersen D.
- 18:00 End of the day

## Timeline

**Tuesday 27 September**

### AO instruments and pathfinders

|       |   |                             |
|-------|---|-----------------------------|
| 09:00 | <b><i>Palm-3000 on-sky results (invited)</i></b>  | Dekany R.                   |
| 09:30 | <b><i>Extreme is the new normal: lessons from 8-m ExAO for ELT regular AO (invited)</i></b>     | Macintosh B. & Beuzit J.-L. |
| 10:00 | Integration, tests and laboratory performance of SAXO, the VLT-SPHERE extreme AO system         | Petit C.                    |
| 10:20 | On-sky demonstration of focal plane wavefront sensing and quasi-static speckle suppression      | Kenworthy M.                |
| 10:40 | ===== <i>Break</i> =====  |                             |
| 11:10 | Direct imaging of habitable planets with ELTs   | Guyon O.                    |
| 11:30 | EPICS: XAO coronagraphic imaging of exoplanets with the E-ELT                                   | Kasper M.                   |
| 11:50 | Getting the most out of mid-IR on the E-ELT with the METIS Adaptive Optics system               | Stuik R.                    |
| 12:10 | ===== <i>Lunch</i> =====  |                             |
| 13:30 | <b><i>Gemini South MCAO on-sky results (invited)</i></b>  | Rigaut F.                   |
| 14:00 | NFIRAOS — Multiconjugate AO System for TMT  | Herriot G.                  |
| 14:20 | The E-ELT Multi-Conjugate Adaptive Optics module  | Diolaiti E.                 |
| 14:40 | Novel Adaptive Optics on the Pathway to ELTs: MCAO with LINC-NIRVANA on LBT                     | Herbst T.                   |
| 15:00 | HARMONI - the first light integral field spectrograph for the E-ELT                             | Thatte N.                   |
| 15:20 | ===== <i>Poster session</i> =====   |                             |
| 16:40 | Laser Tomographic AO system for an Integral Field Spectrograph on the E-ELT : the ATLAS project | Fusco T.                    |
| 17:00 | Design of the Laser Tomography Adaptive Optics System for the Giant Magellan Telescope          | Conan R.                    |
| 17:20 | Pathfinders to ELT AO at W.M. Keck Observatory  | Wizinowich P.               |
| 17:40 | GLAO4ELT: trade study and SAM experience  | Tokovinin A.                |
| 18:00 | ===== <i>End of the day</i> =====   |                             |
| 19:00 | ===== <i>Conference dinner</i> =====  |                             |

## Timeline

### Wednesday 28 September

#### Wavefront correctors

|       |   |               |
|-------|---|---------------|
| 09:00 | Thin Shell Manufacturing for large Wavefront correctors                         | Ruch E.       |
| 09:20 | Preliminary design status of the M4AU based on piezo-stack technology           | Crepy B.      |
| 09:40 | Contactless Large Deformable Mirrors: ELT AO corrector technology available now | Biasi R.      |
| 10:00 | Advancement of Piezo-Stacked DM technology at CILAS                             | Sinquin J.-C. |
| 10:20 | MEMS Deformable Mirrors in Astronomical AO                                      | Bierden P.    |
| 10:40 | ===== <i>Break</i> =====  |               |

#### Wave-front sensing

|       |  |                   |
|-------|--|-------------------|
| 11:00 | A decadal survey of AO wavefront sensing detector developments in Europe   | Feautrier P.      |
| 11:20 | OCAM2: world's fastest and most sensitive camera system for advanced Adaptive Optics wavefront sensing                             | Gach J.-L.        |
| 11:40 | Pyramids, layers and no laser guide stars!   | Ragazzoni R.      |
| 12:00 | ===== <i>Lunch</i> =====   |                   |
| 13:20 | LGS WFS on ELTs I: Wave Front Sensor Design & Analysis   | Muller N.         |
| 13:40 | LGS WFS on ELTs II: Impact of the sodium layer fluctuations  | Thomas S.         |
| 14:00 | Experimental validation of the linearized focal-plane technique (LIFT)   | Meimon S.         |
| 14:20 | Tomographic phase diversity for phase retrieval on wide-field AO systems   | Gratadour D.      |
| 14:40 | A pyramid sensor based AO system for Extremely Large Telescopes  | Quiros-Pacheco F. |
| 15:00 | ===== <i>Poster session</i> =====  |                   |
| 16:30 | SPHERE non-common path aberrations measurement and pre-compensation with optimized phase diversity processes: experimental results | Sauvage J.-F.     |
| 16:50 | A sensitivity comparison between the non-linear curvature wavefront sensor and the Shack-Hartmann wavefront sensor in broadband.   | Mateen M.         |
| 17:10 | Laboratory results for speckle suppression with a self-coherent camera.  | Baudoz P.         |
| 17:30 | Post-coronagraphic wave-front sensing dedicated to exoplanet detection   | Sauvage J.-F.     |
| 17:50 | Phase correction of segment diffraction for high-contrast imaging  | Pueyo L.          |
| 18:10 | ===== <i>End of the day</i> =====  |                   |

## Timeline

### Thursday 29 September

#### Laser guide star systems

|       |  |                    |
|-------|--|--------------------|
| 09:00 | <b><i>Properties and dynamics of mesospheric sodium and the impact on sodium LGS AO systems (invited)</i></b>                              | Pfrommer T.        |
| 09:30 | Gemini Multi-Conjugate Adaptive Optics (GeMS) Laser Guide Star Facility Commissioning Results  | Dorgeville C.      |
| 09:50 | Rayleigh scattering, Fratricide effect and spot elongation: first on-sky results with GeMS   | Neichel B.         |
| 10:10 | Real-time measurement of the Na layer profile for tomographic reconstruction: experimental results and its application to the E-ELT case   | Montilla I.        |
| 10:30 | ===== Break =====  |                    |
| 11:00 | ARGOS - the Laser Star Adaptive Optics for LBT   | Rabien S.          |
| 11:20 | The Four-Laser Guide Star Facility (4LGSF) for the ESO VLT Adaptive Optics Facility (AOF)  | Bonaccini Calia D. |
| 11:40 | Design and Performance of Raman Fiber Amplifier Based 589-nm Guide Star Lasers for ESO VLT and Their Suitability for Future ELT AO Systems | Karpov V.          |
| 12:00 | ===== Lunch =====  |                    |

#### Atmospheric turbulence and other AO disturbances

|       |   |              |
|-------|---|--------------|
| 13:30 | <b><i>ELT Site Characterization for AO, the Tools and the Results (invited)</i></b> | Sarazin M.   |
| 14:00 | Optical turbulence forecast with non-hydrostatical mesoscale models                 | Masciadri E. |
| 14:20 | Impact of the $C_n^2$ description on Wide Field AO performance                      | Costille A.  |
| 14:40 | First results on a $C_n^2$ profiler for GeMS  | Cortes A.    |
| 15:00 | Producing Large Synthetic Turbulence Plates using MRF Polishing                     | Véran J.-P.  |
| 15:20 | ===== Poster session =====  |              |

#### AO real-time control

|       |   |             |
|-------|---|-------------|
| 16:50 | <b><i>Are integral controllers adapted to the new era of ELT adaptive optics? (invited)</i></b>     | Conan J.-M. |
| 17:20 | Performance of MCAO on the E-ELT using the Fractal Iterative Method for fast atmospheric tomography | Tallon M.   |
| 17:40 | A Kaczmarz type iterative reconstructor for Multi Conjugate Adaptive Optics                         | Ramlau R.   |
| 18:00 | ===== End of the day =====  |             |

## Timeline

### Friday 30 September

#### AO real-time control

|       |   |            |
|-------|---|------------|
| 09:00 | Vibration Suppression Algorithms for NFIRAOS on TMT   | Correia C. |
| 09:20 | Efficient control schemes with limited computation complexity for Tomographic AO systems on VLTs and ELTs                 | Petit C.   |
| 09:40 | Real-time control developments for the CANARY MOAO instrument at Durham   | Basden A.  |
| 10:00 | Latest Ground Layer Adaptive Optics results and advancements in Laser Tomography implementation at the 6.5m MMT telescope | Bendek E.  |
| 10:20 | <hr/> <i>Break</i> <hr/>  |            |
| 11:00 | Experimental comparison of Wide Field AO control schemes using the Homer AO bench.  | Pariset A. |
| 11:20 | Identification of system misregistrations during AO-corrected observations  | Bechet C.  |
| 11:40 | The Slope-Oriented Hadamard scheme for in-lab or on-sky interaction matrix calibration                                    | Meimon S.  |
| 12:00 | <hr/> <i>Lunch</i> <hr/>  |            |

#### AO modeling and post-processing

|       |   |               |
|-------|---|---------------|
| 13:30 | Tip-tilt sensing strategies for the GMT laser tomography adaptive optics system   | Van Dam M.    |
| 13:50 | Analysis of the Improvement in Sky coverage for TMT NFIRAOS   | Wang L.       |
| 14:10 | Point Spread Function Reconstruction for Laser Guide Star Multi Conjugate Adaptive Optics Systems on Extremely Large Telescopes | Gilles L.     |
| 14:30 | Laser-Guide Star Point-Spread Function Reconstruction for ELTs  | Correia C.    |
| 14:50 | Practical experience with AO PSF reconstruction at the Keck and Gemini telescopes   | Jolissaint L. |
| 15:10 | <hr/> <i>Break</i> <hr/>  |               |
| 15:40 | Numerical simulations of an Extreme AO system for an ELT  | Le Louarn M.  |
| 16:00 | SPHERE: Confronting in-lab performance with system analysis predictions   | Dohlen K.     |
| 16:20 | Achieving High Contrasts Through Speckle Rejection With Slicer Based Integral Field Spectrographs                               | Salter G.     |
| 16:40 | Myopic exoplanet detection algorithm based on an analytical model of AO-corrected coronagraphic multi-spectral imaging.         | Ygouf M.      |
| 17:00 | <hr/> <i>End of the conference</i> <hr/>  |               |