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FROM SEPTEMBER 16 TO 19, 2003, the ESO Workshop on “Science with Adaptive Optics” took place at ESO Headquarters in Garching. Its scope was to bring together users of adaptive optics (AO) from all fields of astronomy in order to discuss the latest scientific results obtained with AO systems, and to exchange ideas on how to reduce and analyse such observations.

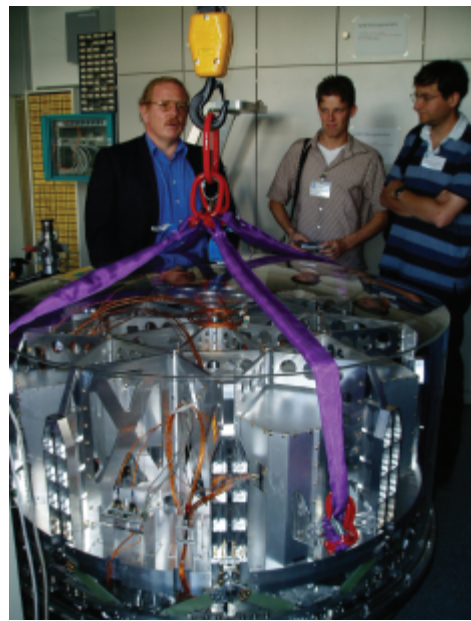
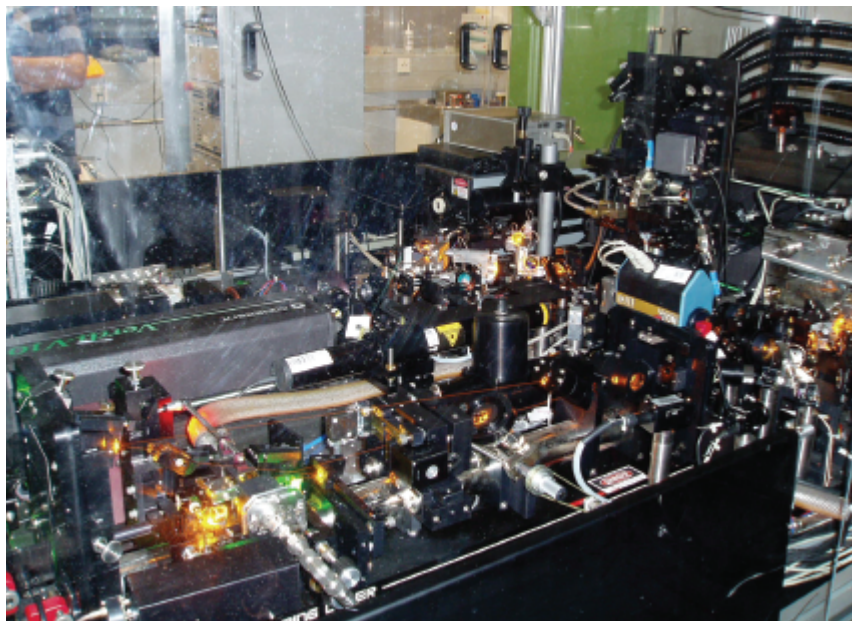
More than 100 researchers working in many different areas of astronomy came together, providing a comprehensive picture of the utilization of AO, and highlighting the unique science potential of AO for all branches of astronomy. September 2003 also marked the completion of the first year of science operations of NACO and the first VLT AO System (Brandner et al. 2002, *ESO Messenger* 107,1).

Both the “Lessons Learned” by the ESO staff and community, and a significant number of science results obtained with NACO were presented at the workshop.

The meeting opened with a brief, yet concise introduction to the history of AO presented by François Rigaut (Gemini Obs.), and continued with overviews of various AO systems, as well as talks on observing and data analysis strategies. Christoph Keller (NSO) started off the science sessions with a review talk on the results of high spatial resolution observations of the Sun. The session on solar astronomy was followed by talks on Solar System objects, circumstellar discs (review by François Menard, LAOG), substellar companions, HII regions with a focus on Orion, as presented by Daniel Rouan (Obs. de Paris) and colleagues, and starburst environments. Hideki Takami (SUBARU telescope) presented differential spectroscopy of the extended molecular layers of late-type stars. The highlight of the session on “The Galactic Center and beyond” was the review talk by Reinhard Genzel (MPE), summarizing the latest results on the supermassive black hole in the centre of our Galaxy.

In recent years, the field of AO has matured considerably, as shown by the large number of contributions dealing with extragalactic objects. Tim Davidge’s (Herzberg Institute, NRC) review on “Resolved Stellar Populations in Star Clusters and Nearby Galaxies” drew the link between Galactic and extragalactic studies, followed by several talks on NGC 1068 and other nearby AGNs, and quasar host galaxies. One of the highlights here was the measurement of the inner rotation curve around the central black hole in Centarus A as presented by Nadine Häring (MPIA). The workshop closed with an outlook on “Science with future AO systems”, and with a review by Roberto Gilmozzi (ESO) on “Science with OWL”.

In summary, the 54 talks and more than 25 poster contributions gave a lively picture of the multitude of science topics to be addressed by AO, and proved that AO has become an essential tool in observational astronomy.



Technical and ethnological excursions during the workshop: Visit to the Laser lab at MPE, the VLT Laser Guide Star PARSEC (above), Reinhard Genzel explaining SPIFFI to workshop participants (above right), happy workshop participants visiting the opening of Oktoberfest after the end of the meeting (right). All images are courtesy of Dimitrios Gouliermis.

