In memoriam Alan Moorwood

Alan Moorwood died on 18 June 2011 at the age of 66 after a short illness. He had recently retired from ESO as Director of Programmes, having played a leading role in instrumentation for many years. There follows an obituary by Tim de Zeeuw and a joint tribute by three of his long-time ESO colleagues, Bruno Leibundgut, Bob Fosbury and Sandro D'Odorico.

Obituary

Tim de Zeeuw[1]

[1] ESO

Alan, born in May 1945, was educated in the United Kingdom. After a few years at ESA in Noordwijk, he joined ESO as Infrared Astronomer on 1 October 1978, when the Organisation was still based in Geneva and had about 40 staff members. In an exemplary career spanning more than three decades, Alan pioneered the development of infrared instrumentation for La Silla and co-authored the VLT instrumentation plan. He ultimately oversaw ESO's entire instrumentation effort, while at the same time maintaining a very active research programme resulting in nearly 400 publications, which made him one of ESO's most-cited astronomers. Alan's research centred on using infrared imaging and spectroscopy obtained with space observatories and ground-based telescopes to understand star formation in galaxies, including the study of molecular hydrogen in starburst galaxies, the physics of active galactic nuclei and ultraluminous infrared galaxies, and observations of high-redshift galaxies.

Alan developed the infrared instrumentation programme at ESO that resulted in some of the first infrared instruments on European telescopes. IRAC on the MPG/ESO 2.2-metre telescope, SOFI on the NTT and ISAAC on the VLT were built under his leadership. In October 2003 he was appointed Head of the Instrumentation Division. Under his successful leadership the Division commissioned many instruments including VISIR, SINFONI, CRIRES, HAWK-I and X-shooter, upgraded several others and strongly engaged on the second generation instruments KMOS, MUSE and SPHERE.

From 1 February 2008 until his retirement on 31 May 2010, Alan was Director of Programmes, providing leadership, setting programmatic priorities and carrying out resource planning for three Divisions (Telescope, Technology and Instrumentation). In this role he gave strategic guidance for the planning and implementation of the entire optical–infrared programme, and crucially influenced the design effort for the E-ELT and its instrumentation.

Alan generously served the scientific community. He was one of the most valuable mission scientists for the Infrared Space Observatory, was a sought-after collaborator, and one of the driving figures behind the very successful series of international SPIE instrumentation conferences and organised a number of other conferences, including the influential October 2007 Workshop, entitled

Science with the VLT in the ELT era. Alan was a role model for combining a high level of contribution to the Organisation with an active and high-quality research programme. He supervised numerous students, many of whom have gone on to become well-known astronomers themselves. He was a founding member of the Senior Faculty at ESO, and held the first Emeritus Astronomer position in recognition of his tremendous achievements (see Primas et al., 2010).

Alan was a key contributor to ESO's rise to its current world-leading position in astronomy. He will be remembered as a person of the utmost dedication, commitment and professionalism. His somewhat shy but open and friendly personality, his encyclopaedic knowledge of ESO and its history and his legendary dry humour were widely appreciated.

In the past year Alan had clearly made a transition into his new role as Emeritus, and looked forward to many more enjoyable years. It was not to be, but even so Alan's legacy continues to grow, with the second generation instruments on the VLT coming online, those for the E-ELT to follow in the next decade, and many people's lives positively influenced by him.

References

Primas, F., Casali, M. & Walsh, J. 2010, The Messenger, 141, 50

Tribute

Bruno Leibundgut[1]
Bob Fosbury[1]
Sandro D'Odorico[1]

[1] ESO

With the death of Alan Moorwood, ESO has lost one of its most prominent astronomers. Alan became a master in the art of combining his love for research with his dedication to the task of building the best possible instruments. He remained an active scientist until the very end. Less than a month before his death he gave a talk at a conference about the latest results on high-redshift galaxies detected with one of "his" instruments, HAWK-I. He proudly showed the results obtained on $z > 7$ galaxies ("the only ones with real spectroscopic redshifts," as he pointed out). Alan also presented this result at the Science Day in Garching this past February.

Alan was always fully convinced of the need for active participation in advanced research for the astronomers who had project responsibilities, particularly for those in instrument development. With more than 160 refereed papers over 40 years he had one of the highest H-indices of all ESO astronomers. He made seminal contributions to many topics in infrared astronomy. His career started with the mapping of infrared sources, and the list of his interests grew to include the Earth's atmosphere, H II regions, star-forming regions, supernova remnants, active galactic nuclei, starburst galaxies, ultra-luminous infrared galaxies and the high-redshift Universe. One of his favourite objects was the Circinus galaxy, a Seyfert 2 galaxy undergoing a massive starburst at a distance of only 4 megaparsecs. This is one of the closest active galaxies to our Milky Way but, because it is only 4 degrees from the Galactic Plane, it is heavily obscured and so best observed in the infrared.

In an undergraduate thesis at University College London (UCL), supervised by Mike Seaton, Alan predicted the flux expected to be emitted in the [C II] 158-micron fine-structure line from star-forming regions in the Galaxy. This was a topic that was to span his entire career, but only reach full maturity with the advent of Herschel, an ESA space mission in which Alan played an important role both before and after his retirement.

Alan started his career as an instrument builder/user as a student at UCL. He participated in balloon-borne experiments to measure far-infrared emission in the pioneering days where the payloads did not always follow a predictable trajectory. He then moved to ESTEC where, working for ESA, he perhaps felt that instruments might enjoy a longer life expectancy. Eventually planting his feet firmly on the ground by joining ESO when it was based at CERN in Geneva, his career was set to see that Europe played a key role in the transformation of infrared astronomy, as ESO advanced to become the foremost astronomical observatory on the planet.

At the age of 34, Alan co-authored a major review article with John Beckman on infrared astronomy (Beckman & Moorwood, 1979), which summarised the state of this emerging field at the end of the 1970s. As they pointed out, infrared astronomy had then been evolving for a little more than a decade, but held great promise for "instruments outside the Earth's atmosphere". Consequently, Alan became strongly involved with ESA's Infrared Space Observatory (ISO).

Two years ago Alan presented some personal recollections of the ESO infrared instrumentation programme in a *Messenger* article (Moorwood, 2009). In his typical style he described the situation at ESO when he started as "[a]lmost state of the art". The development of infrared astronomy has been truly phenomenal. In Alan's words: "[T]he first infrared instruments offered by ESO had one pixel at the focus of a 1-metre telescope with an effective resolution of a few arcseconds." By now infrared instruments which "provide resolutions down

to the diffraction limit of an 8-metre telescope" and infrared cameras with "16 million pixels and a resolution of ~ 0.1 arcseconds over a field of 7.5 × 7.5 arcminutes[2]" have been deployed. Alan led this development over 30 years. He also mused in his article how the process of designing and building astronomical instruments has changed over the years: "It turned out we actually had to write down the specifications to remember them, use advanced design and failure mode and effects analysis software, have project plans and meetings and even reviews to check where we were."

To the consternation of many of his colleagues and friends, even some of the native-English speakers, Alan would use his exquisitely-developed sense of irony to make points with great effect. He could do this equally to cut through verbal obfuscation and reveal the naked truth or to light-heartedly diffuse a conflict. His aptitude for recalling past history and even the details of conversations was quite stunning and sometimes intimidating. He would recall one of your statements from years ago in order to reinforce a current point while you would struggle to remember that the conversation took place.

There are many more contributions that Alan made to ESO and its staff. He represented the ESO instrumentation programme in front of countless internal and external committees, always exhibiting a depth of knowledge and judgment that awed his audience. In front of bodies such as the Scientific and Technical Committee and the ESO Council he was a convincing advocate of the need to keep part of the instrumentation development in house in order to serve as a link between the ESO community at large and the Observatories. As one of the key drivers of instrumentation at ESO, Alan was living proof that functional work and research can be successfully reconciled. Alan's advice was sought by many people at ESO and he responded willingly and generously, particularly to those who posed well thought-out questions!

References

Beckman, J. E. & Moorwood, A. F. M. 1979, Rev. Prog. Phys., 42, 87
Moorwood, A. F. M. 2009, The Messenger, 136, 8

In memoriam Carlo Izzo

Tim de Zeeuw[1]
Michèle Péron[1]

[1] ESO

Carlo Izzo, a software engineer at ESO, died on 23 June 2011, at the age of 51 after fighting courageously a short illness.

Carlo, born in October 1958, was educated in Italy at the University of Padua where he studied astronomy. He started his career at ESA, Darmstadt in 1985 where he was involved in software development for the operation of the payload of the EXOSAT satellite. Following this he joined the Max-Planck Institute for Extraterrestrial Physics (MPE) in Garching on a Fellowship and then went on to be a software developer for X-ray astronomical data analysis within the MIDAS environment. He joined ESO in 1999 as a Scientific Applications Developer, where he was involved in the development of the FORS and VIMOS pipelines. Later he became a main developer of the Common Pipeline Library and he was the ESO responsible for the KMOS pipeline.

Carlo was highly respected by his colleagues and customers for his expertise as an engineer and his strong astronomical background. Carlo was known for bringing innovative contributions to a wide range of projects including new pattern-matching methods for the FORS and VIMOS pipelines, scientific workflow and modular designs for multi-object spectroscopy, and science-grade improvements for the FORS Accurate Photometry project. He was dedicated, passionate and enthusiastic, and always had a positive approach to his work. He was excellent in communicating his enthusiasm to his peers and was a pleasure to work with. He will be remembered as a brilliant friend and colleague with a great sense of humour.