To the future

ESO is an outstanding example of what can be achieved through collaboration and shared vision. I list a few examples: the second generation VLT instruments are the most ambitious and powerful capabilities available anywhere on optical/infrared telescopes and will doubtless provide a stream of high-profile results in the coming years; the results from ALMA over the last few months have demonstrated its enormous potential, and there is more to come as the number of antennas in use increases and the observatory moves towards full operations; and the first instruments for the E-ELT are moving towards approval for construction. At the same time, further VLT and VLTI instruments are in the pipeline and upgrades to current capabilities will maintain their power.

ESO is a remarkably powerful and capable organisation, with very strong support from its Council delegates and the community. ESO is seen as a model for other communities to follow and I am both proud of this and eager to contribute to future developments. At a time when many funding agencies have had to make very difficult decisions about funding priorities within their national programmes, they have provided a ringing endorsement of ESO's programme by not only maintaining their investments, but ramping up their contributions to ensure that the E-ELT can be built and operated at the level needed to sustain the programme.

The last couple of years have seen some very important anniversaries marking ESO's early years, and reflecting on those gives a very real sense of the way that it has developed from initial ideas to the world-leading organisation that we see today. There will doubtless be substantial challenges in the next few years as the current facilities are consolidated and the E-ELT construction programme pushes ahead, but these will come at a time when the capabilities and productivity of ESO's facilities have established us at the forefront of astronomy.

I look forward to the exciting times ahead!

Fellows at ESO

Bernd Husemann

I was born 1981 in the small village of Amelunxen, located almost at the centre of Germany between Paderborn and Göttingen, or Kassel and Hannover. When I was about nine years old *Star Trek — The Next Generation* started on German TV and became my obsession. I admired the enthusiasm with which the *Enterprise* crew explored the huge and vastly unknown Universe, and their curiosity for new civilisations. I dreamt of being a part of their Universe and exploring it when I grew up. Thus, I read a lot of children's books about the Solar System, the Galaxy and the history of the Universe. Given my never-ending desire to understand how the world around me really works, it was a natural choice for me to become a scientist.

Although I had not yet seen a telescope, I had already decided two years before finishing school that I wanted to study astronomy. Checking the available universities in Germany left me with just a few options. I chose the University of Potsdam for two basic reasons: it is a small university with good contacts among the students and lecturers; and, the Leibniz-Institute for Astrophysics (AIP) is nearby and I was already thinking about doing a PhD there. Indeed it was the best choice I could have made and the best time of my life. We were a group of only 20 young and motivated physics students locked together in a room each day solving maths exercises, hunting down the lecturers for questions and complaining about our exams being far too difficult.

An important milestone for my personal development, education and career was to study for one year abroad in Southampton (UK) in 2003. It was a coincidence that the University of Southampton offers one week of training at the Teide Observatory (Tenerife, Spain) each year for their astronomy students. Although I was only a short-term visiting student, Phil Charles and Christian Knigge decided that I could attend the training course without additional cost. Visiting a remote observatory for the first time allowed me to see the night sky in its full beauty. The star sign Scorpio became my favorite and I realised that looking deep into the Universe with big telescopes at amazing locations is a true privilege. This was the job I really wanted to do!

Bernd Husemann

The astronomy department at Southampton was focused on high-energy phenomena and I became interested in accreting supermassive black holes at the centres of galaxies (active galactic nuclei; AGN). Back in Potsdam a year later, I continued my studies and contacted Lutz Wisotzki as a local expert on AGN. He gave me the opportunity to work for my diploma thesis in his group for one year starting in autumn 2006. My task was to reduce and analyse optical integral field spectroscopy (IFS) data for a large sample of luminous AGN in order to understand their interplay with the interstellar medium. Since IFS was a rather new optical observing technique at that time, I had to tackle many technical issues. Python became my best friend during that period. Apparently, I did not perform too badly and I continued towards a PhD in 2007 supervised by Lutz Wisotzki and Sebastian F. Sanchez to expand the work I had started during the diploma.

During my PhD I enjoyed many observing trips to the Calar Alto Observatory (Spain) together with my fellow students Andreas Schulze, Sebastian Kamann and Christian Herenz. I developed into an experienced astronomer and an expert in IFS by working with data from many different instruments, like VIMOS at the VLT and the Potsdam Multi-Aperture Spectrophotometer (PMAS) at Calar Alto. Although it is unusual to stay at one place so long, I spent another two years as a postdoc at AIP after graduating in 2011. My expertise in IFS was strongly required to support the Calar Alto Large Integral Field Area (CALIFA) survey that was initiated by Sebastian F. Sanchez, in collaboration with many international institutes. As part of such a large collaboration, I experienced working with many scientists around the world and established a network that is of great value to me.

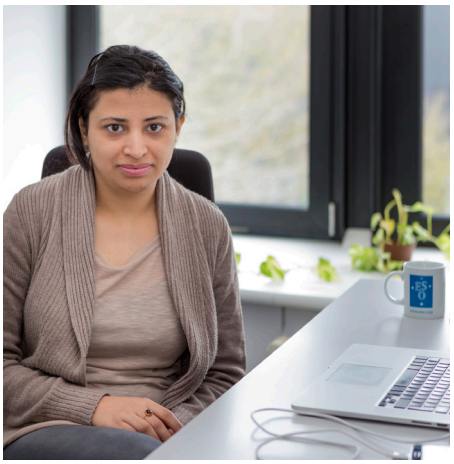
It was time for a change, and I luckily became an ESO Fellow in Garching in the autumn of 2013. As an optical astronomer, ESO always appeared like heaven on earth to me. I am grateful for the opportunity to develop my profile as an independent researcher at ESO. The diversity of research at ESO and the neighbouring institutes on the Garching campus provide a unique environment that often leads to new projects and collaborations. On the other hand, I am also happy to contribute with my experience and I became part of the ESO team supporting the commissioning of the MUSE instrument at the VLT. MUSE is a next generation integral field spectrograph and I am happy to be one of the few researchers who has already received data from the first period of observations.

Currently, I am building up an international collaboration called the Close AGN Reference Survey (CARS) to exploit MUSE data and enhance its value by acquiring multi-wavelength observations from X-rays to radio. This is an exciting new challenge for me, which certainly sets the next stage in my career. I will never lose the energy and enthusiasm for astronomy, but having a family with a 20-month-old daughter often sets constraints incompatible with an optimal career path. To make both things work is probably an even greater challenge for me right now than being just a successful astronomer.

Tayyaba Zafar

I grew up in Lahore, Pakistan and from a young age I wanted to do a PhD in physics, but couldn't make up my mind in which particular subject. Originally my interest in science was from a very mathematical viewpoint, but as I progressed in my studies, I found myself becoming more and more fascinated with its applications, in particular in physics. Therefore, I decided to take an MSc in physics. I was in particular interested more in particle physics, or the standard model to be exact. During my time as a "particle apprentice", I acquired a strong background in particle physics, quantum field theory and the theory of general relativity. I scored the highest marks in MSc Physics from amongst 438 students who took the exam in the whole of the Punjab province. I was immediately hired as a lecturer by the University of the Punjab, Lahore, after the MSc result and worked there for one and a half years. During that time, for teaching other courses I chose cosmology, since my interest in cosmology and astrophysics had developed through reading books in the library.

I started applying for PhD positions in the field of astrophysics in the United States



Tayyaba Zafar

and Germany. In early 2008, I coincidently met with the Danish Ambassador at a seminar and he suggested that I should apply to Denmark as well. So I applied for a PhD vacancy at the Dark Cosmology Centre (DARK), University of Copenhagen. I was finally short-listed and after a written test and an interview, I was selected. So I stepped into wonderful Copenhagen, which was my first exposure to the wide world, and started my PhD in late 2008. Copenhagen has been my favourite city ever since. During the first year of my PhD I worked on acquiring more astrophysics knowledge, especially as I was hired for hunting high-redshift Lyα emitters using X-shooter. However, near the end of my first year, we realised that X-shooter was delayed and to obtain my degree I would need another project. Life shrinks and expands in proportion!

Out of the various projects my supervisor, Darach Watson, and I considered, we found that dust extinction in gamma-ray burst (GRB) afterglows was the most feasible. The absorption of the stellar light at optical and ultraviolet bands by the intervening condensed matter phase of stellar dust particles provides insights into hidden star formation. While stars are being born and dying everywhere, the fascinating aspect is that we come from that stardust. Ever since I have been attracted to the obscured Universe. I worked in particular on GRB afterglows, energetic serendipitous objects, offering a relatively unexplored view of the darkest and furthest side of the Universe. Later

on I expanded the dust studies to quasars and their intervening absorbers. At DARK, I not only moved from physics to astrophysics, but also learned enormously from my colleagues in various fields.

Even during my PhD, I did not limit myself to a narrow range of topics. I also worked on Damped Lyα Absorbers (DLAs), seen along the sightlines towards luminous quasars, to study their chemical and physical properties. DLAs, classified on the basis of their neutral hydrogen, are distant foreground galaxies usually faint and small (on the sky). I defended my thesis in April 2011 and continued working as a visitor at DARK for six months. I started my first postdoc at the Laboratorie d'Astrophysique de Marseille, France, working with Céline Péroux. There I expanded my studies of intervening absorbers to a larger sample of DLAs and sub-DLAs, obtained from the UVES archive. I also started combining samples of GRBs and quasar absorbers to infer dust properties in distant diverse environments.

I left sunny Marseille, to commence my current ESO fellowship in Garching during late 2013. The fellowship not only gives us independence scientifically, but also provides the opportunity to perform functional duties at amazing ESO sites. Since I have mostly used VLT data during my career path, I therefore picked my duties to be at the driest place on Earth, Paranal Observatory. During my PhD, I went to the Nordic Optical Telescope, La Palma, Spain, for two weeks for a summer observing school. Now ESO has given me opportunities to observe with its powerful facilities. During my first year I provided both day- and night-time support mainly for Unit Telescope 3 (UT3), and now I have switched to UT2. I adore the environment at Paranal, and every visit there is a great experience, where I not only perform service mode observations, but also learn to deal with specific technical issues.

The beauty of astronomy is that we are billions beneath the starry sky but when we peer out, we see one single player, the Universe. I love doing research in astrophysics, starting from general chemical and physical properties and putting them in context of a global picture. I am looking forward to the powerful European Extremely Large Telescope, which will target many more hidden mysteries of the obscured Universe.

Staff at ESO

Konrad Tristram

To be honest right from the start: it was never my childhood dream to become an astrophysicist. I had totally different ideas of what I would like to become as a small boy: medical doctor, shopkeeper, bank clerk, tram driver. At some point, I even wanted to become a waste collector because they wore such nice orange suits. Rather, the path towards becoming an astrophysicist just laid itself out in front of me with time, especially during my studies at university.

My first notable contact with astronomy was during my last year at school when I picked astronomy as an optional course. I excelled at the astrophysical part. Learning the names of stars and constellations, on the other hand, was not my calling. Fortunately it turned out that this was not an important part of the course and I nevertheless got full marks. In fact, I remember standing out in the fields not far from my parents' house identifying constellations and trying to learn by heart the names of their most important stars. Even today my orientation on the night sky is limited. For example, it took me about a year to find out that one of the galaxies I was working on for my PhD, the Circinus galaxy, was in fact called like that because it was the galaxy in the small southern constellation of Circinus, the Compass.

I started studying physics in the north German town of Rostock on the Baltic Sea. There I enjoyed the friendly atmosphere of the physics department, the good ratio of professors to students and above all the possibility to learn for exams on the beach. However, the choice of courses for specialisation was limited and upon receiving my Vordiplom I moved to Heidelberg, in order to have a larger field of options for research. At that time I was still dreaming of saving the world by contributing to physics with a practical use, for example by working on fusion power. However the group doing that at Heidelberg closed. "Fortunately" I must say from my current point of view.

Konrad Tristram