

## Fellows at ESO

### Ana Escorza

My interest in astronomy is older than I can remember, but I could have never imagined it would take me this far professionally or geographically. When I was young, I thought that looking at the night sky was just a nerdy hobby; but now I get to do that from the Paranal platform while taking a break from my actual job as a VLT night astronomer. It's a dream.

I was born in Calahorra, a small city in the north of Spain. The region, La Rioja, is quite empty, mainly being full of farms and vineyards. The cities nearby are not too large either, so light pollution is moderate and the sky is quite enjoyable. I always looked up with curiosity, but I was just very curious about everything. I never really planned to make a living from looking at the stars. At school, I was a good student. I was interested in all the sciences, but also in history and literature, which made it quite difficult for everyone, including me, to guess where I would end up. The story started changing with a school trip.

At some point in the early 2000s, my school took me and my classmates to Borobia, a tiny town 100 kilometres away that I had never heard of until then. There, they had a small observatory built mainly for outreach purposes, and through their 42-cm Schmidt–Cassegrain telescope “El Coyote”, I saw Jupiter’s moons, Saturn’s rings, and a few nebulae and globular clusters for the first time. That was it! It might sound stereotypical, but that day I went back home saying that I wanted to work in a place like that when I was older. Working in Paranal was still beyond my wildest dreams though.

A few years later I started a physics degree in Zaragoza. Although the university did not have a specialisation in astronomy, I did get the chance to fulfil teenager-Ana’s life goal. I did a summer internship in Borobia and I spent a summer doing science communication with the very same telescope that had changed my view of the sky a few years back. During my degree I also did an exchange year in Southampton, where I could take more astronomy courses than in my home university, and I was granted a summer research position at the

Institute of Astronomy in the Canary Islands. These experiences put me definitively on the astronomy track. However, my physics degree in Zaragoza was very theoretical, and I did not feel ready to jump into real research just yet. This is how I ended up in Belgium, looking for another international adventure and pursuing the master’s degree in astronomy and astrophysics at KU Leuven, a programme that was very much focused on observational astronomy research.

Belgium is where the story really changed. KU Leuven took a physicist who had no idea what she could do with her degree and made an astronomer with ambitions and big plans for her future. During my master’s, I got the opportunity to operate my new favourite telescope, the Mercator telescope. I jumped from a 42-cm to a 1.2-m telescope, and from using my eyes as my only instruments to using HERMES, one of the most wonderful spectrographs available (no offence to my dear ESO instruments). Once I graduated, the path to follow was crystal clear, as it had never been before. I was sure for the first time that I wanted to do a PhD in astronomy and, if possible, I wanted to do it in Belgium. I applied for a couple a vacancies to fulfil this new life goal and in 2015 I started a dual PhD in astronomy in a collaborative programme between KU Leuven and the Université Libre de Bruxelles.

My PhD focused on barium stars, a class of chemically peculiar stars formed as products of the interactions between asymptotic giant branch stars (old red giants) and their companions in binary systems. Most of the research I have led concerns these systems, but I am interested in any fun or weird multiple system, especially if the stellar components are interacting or did so in the past. During my PhD, I also developed an interest in teaching and a passion for science communication. I may be biased, but I think that astronomy is one of the prettiest sciences, and we astronomers should use that gift to advocate for the other branches of science. With this mentality, I have participated in and organised all kinds of outreach events, at all kinds of venues and for all kinds of audiences. In case you are curious, my personal favourites are events like Pint of Science and Astronomy on Tap. Bringing scien-



tists to pubs to talk to the locals about ground-breaking science with everyday vocabulary is one of the most rewarding science communication experiences I have had, even more rewarding if there is Belgian beer involved, of course.

Going back to the story that brought me to write this piece, and almost reaching the end, in October 2019 I started applying for postdocs. With a mounted image of Paranal in my living room and with enough ambition and ideas to continue my career with my own grant, the ESO fellowships were the first two postdoc applications I wrote. I got the offers just before Christmas, on the same day that I submitted my PhD thesis. I became a Doctor in Astronomy on 3 March 2020, a week before Europe locked down, and a few months later I moved to the other side of the world. Now I am an ESO Fellow in Chile with duties in Paranal, where I operate Antu and Kueyen (UT1 and UT2). I have a couple of nerdy hobbies now: drinking a coffee while enjoying the sunset from the Paranal platform and looking up at the sky in between observations when my new favourite 8-metre telescopes give me a break.

### Thomas Wevers

When reading (auto-)biographies or histories of famous (as well as less famous) astronomers, they usually start with how they already knew what they wanted to do later in life while they were only children/teenagers. This is not one of those stories; ending up with a career in astronomy was more due to serendipitous events and chance than a well-thought-out plan.

I started following the Latin track in high school, but quickly realised that this was not for me, so after two years I switched to a science track. I was always interested in how stuff works, and spent a lot of time trying to find out how everyday objects, say a fridge, a combustion engine or a car, work. It always seemed to boil down to some law of physics or other, so I included as much physics in my courses as possible — the other sciences did not seem to have this degree of applicability to everyday life.

Given my interests in how nature works, I chose to do a bachelor's degree in physics at the small university closest to home (Hasselt University, in Belgium). Near the end of this degree, I was convinced that I would take a master's in nuclear physics. However, a course on this subject taken during an Erasmus exchange to Montpellier, France — which I thought would be my favourite topic, but turned out the opposite — made me change my mind. Just a few weeks before I had to sign up for a master's specialisation, I had no idea what to choose.

I came across the astronomy programme of the KU Leuven, which included an observing course on their small telescope in the Canary Islands. This was the most “hands-on” experience I could find among all potential physics specialisations. Without having done an astronomy course worth the name during my bachelor's degree, I decided to take my chances and enrolled for a master's in astronomy.

My master's thesis involved modelling observations of post-AGB binary stars, and while I really liked astronomy, I did not see myself continuing in any of the (mainly stellar astrophysics) topics covered during the master's (except for the observing part!). A lecture series on high energy astrophysics given by a professor from The Netherlands changed my perspective, and I applied for a PhD position to work with this professor in Nijmegen in The Netherlands. The idea was to create a pipeline to reduce Gaia's fast cadence photometry, identify transient events and see what we could find. In practice, the Gaia launch and verification period lasted throughout the first year of my PhD. Having two very creative and supportive supervisors, I ended up working on everything ranging from white dwarfs to X-ray binaries and tidal disruptions of stars (also called spaghettification events) around supermassive black holes. This latter research topic still keeps me busy today.

I was lucky to be able to spend a significant amount of time during my PhD travelling, to observatories (~ 15 trips to La Palma and Chile) as well as conferences and meetings, so I got very familiar being a visitor at telescopes — and curious about how they work from the “other side”.

After finishing my PhD, I moved to do a postdoc in Cambridge, in the UK (working on Gaia transients and the aforementioned spaghettification of stars). During those three years, my curiosity about how the telescopes and instruments themselves work and are organised remained: what technologies are behind them; how you design, build and operate an instrument; how you optimise the scientific output; and so on.

In order to experience this aspect of astronomy, ESO provides a great option for early-career astronomers with its fellowship. As an ESO Fellow I currently work on several aspects (characterisation, performance, etc.) of the Multi Unit



Spectroscopic Explorer (MUSE) instrument, and I have learned a lot about all aspects of astronomy (for example, adaptive optics, which uses laser guide stars to correct the turbulence of the atmosphere). More generally, contributing to operating the VLT has opened a new world of astronomy that I had not quite realised existed, even after spending seven years working in the field. From a professional point of view, it has been an amazing experience.

Unfortunately, being part of a two-body problem (that of finding jobs for both partners in the same place) as an early-career researcher is still very much an underrated and often ignored aspect of academic life, even at a flagship institution such as ESO. As a result, my experience at ESO so far has had a rather stark black & white contrast between the professional and personal aspects. Given that the fellowship is explicitly targeted at early-career researchers, I'm hoping that ESO uses its position at the forefront of astronomy to address this problem in the near future, and leads the way towards a more sustainable career path for astronomers.