

Fellows at ESO



Gergö Popping

Growing up in Groningen, the Netherlands, I was mostly passionate about classical ballet. Like many I enjoyed looking at the night sky, but never really saw myself pursuing a career as an astronomer. I imagined myself performing in theatres all over the world, becoming a star in dance, not studying them. It was only during the last year of high school that I realised a career in dance would also mean missing out on the intellectual challenge that mathematics and physics offered me. So I changed my plan and enrolled as a student in physics and astronomy at the University of Groningen. I had become acquainted with astronomy as a science through my family and thought it would be an interesting topic to study for me as well.

During my third year of university we went on an observing run with the Isaac Newton Telescope on La Palma as a part of the observational astronomy course. I observed the $H\alpha$ emission line in two barred spirals (NGC 1530 and NGC 2903, the latter still being my favourite galaxy to date). The dark night sky was magical and it was during this run that, for the first time, it struck me how much fun a career in astronomy could actually be. Back in Groningen I used the observations for my

first real science project, a multi-wavelength study of star formation within the bars of spiral galaxies.

By the end of my studies I applied for a PhD position within my home university and was lucky enough to get it. The project I applied for was supposed to be a little bit of theory with a lot of interferometric observational work, but it ended up being a lot of theory with no observational work at all. I developed galaxy formation models for the HI and H_2 content and the sub-mm line emission of galaxies. These models are geared towards the newest generation of interferometric observatories such as the Atacama Large Millimeter/submillimeter Array (ALMA) and the Square Kilometre Array (SKA) and its pathfinders. Galaxy formation theory was a completely new field for me, but one with a lot of exciting challenges and a field that I truly enjoy. The practical approach — I have an idea, I implement it in my model, I see what the result is — suits me well.

Joining ESO as a theorist may seem a little bit odd, but actually made a lot of sense. I felt that, after spending four years in the theory world, it would be wise to understand a bit more about the observational side of astronomy. On the more practical side, I had ALMA data

sitting on a hard drive and had no clue what to do with it. Within ESO I mostly continued working on theory. Focusing more on sub-mm emission lines, but also changing fields towards the formation and destruction of dust in galaxies and dust absorption. ESO has been an ideal place to receive observational input for my own work, but also for me to provide theoretical insights for the observational projects of colleagues. Through my functional work in the ALMA Regional Centre (ARC), I have also learned what to do with the ALMA data sitting on my hard drive. I recently finished my first PI observational ALMA paper to study the gas properties of compact star-forming galaxies in the early Universe, something I could not have done without my experiences in the ARC.

Spending time at ESO to learn new things, like how observations are carried out, how different types of instruments at the La Silla Paranal enable different kinds of science, what the wide capabilities of ALMA and the Atacama Pathfinder EXplorer (APEX) are, how surveys are designed and how data handling works, have all provided me with the understanding I was hoping for when I started as a Fellow. Multiple surgeries in the Calama hospital because of appendicitis during an ALMA observing run gave me a memorably different look at what the life of an observational astronomer can be like. Recovering for two weeks in the Santiago guest house and being approached every day by different ESO colleagues saying “Oh, you are the appendicitis guy!” and “Oouw, Calama, that’s rough...”, will strangely enough always be one of my fondest memories of my time at ESO.

I will soon move on to a new position in Heidelberg with new adventures, challenges, and opportunities. I am still not always sure if choosing a career in astronomy over ballet was the right decision, but my time in astronomy has been great so far. The three years at ESO have been a scientific and social highlight with tremendous opportunities to develop as a scientist within an incredibly friendly and fun environment. Thank you all for enabling that!

Adriano Agnello

When I was four, my mum took me with her to the school where she was teaching. As she was demonstrating an experiment, heating samples of sugar into charcoal, I was amazed by this kind of magic that anyone could understand and that my mum would master so confidently (and explain so patiently). So I decided that I would be a scientist one day.

Encouraging my curiosity was easy for my parents, thanks to their scientific education, and I had the luck of attending nearby State schools with excellent teachers. There is a peculiar atmosphere where I grew up; about half of my science and maths teachers were women (a common occurrence in Italy), and half of the girls in my hometown would pursue STEM studies (science, technology, engineering and mathematics), but on the other hand volleyball or ballet were “girly things” that males were not supposed to do. Things changed somewhat when I moved to Pisa to attend University, in a town mostly populated by students and academics.



Adriano Agnello (on the left).

Despite my early enthusiasm, the path to science was not immediate. While at high-school, I often changed my mind, deciding that I would be an architect, a choreographer, an interpreter, ... before settling on physics, then astrophysics for my Masters, with a short hiatus when I briefly considered changing to mathematics. Still at “Scuola Normale”, in my University years, I used to spend most of my spare time with my colleagues in the Humanities. The PhD itself was a bit of a drift: I started with paper-and-pen Bogoliubov–Born–Green–Kirkwood–Yvon (BBGKY) hierarchy computations, then did some dynamical modeling of discrete tracers in Milky Way dwarf spheroidals and nearby ellipticals, then changed to strong lensing. This happened also thanks to my supervisor, who wisely avoided giving me a single project that would stick with me for my whole career. In my first postdoc, while mining large databases to discover “new” lensed quasars, I was often sent observing at Keck, which spurred new interest in how telescopes and observatories work.

After Keck, the Nordic Optical Telescope (NOT), Paranal and La Silla, telescopes are strangely becoming a familiar environment, something I would have not foreseen a few years ago. On account of my job and age, I am used to moving to a new place every two or three years, crossing borders and oceans, so in this constant feeling of uncertainty, telescopes instill a sense of return to a “home away from home”. La Silla, in particular, has gained a special place in my heart. Talking with other astronomers, I discovered that many of them share my love for its intimate atmosphere, the variety of telescopes all within a short walk, and the quiet days and nights (observing with music!) in the middle of some beautiful nature. Walking among its many domes, it is saddening to see some of them now with decommissioned instruments inside.

ESO is a demanding organisation to be managed, and Fellows are encouraged to help with small tasks. My little tasks include helping with the Visitor Selection Committee, where prospective visits are reviewed, feedback by previous visitors

is discussed and recommendations are sent to the Office for Science. It has opened an interesting window onto how different people review the same application, and the expectations that visitors have towards ESO. As part of my ESO Fellowship duties, I opted for training and operations on Unit Telescopes (UT) 4 and 1 instruments. Timing was lucky, as I arrived when UT4 was being upgraded with four powerful lasers and new adaptive optics technology.

In the photo, I am standing with an old friend in front of UT4 during a laser demonstration at twilight. The view of the southern sky from Paranal is breathtaking, and somehow soothing during the long winter nights. When I sneak out onto the platform, the four UTs make an impressive presence; with their sizes, silently rotating and staring, they resemble temples high on sacred mountains where a few initiated interrogate the heavens. I wonder what some archeologists may think of us in a few thousand years.

ESO, and especially Paranal, is a truly multi-cultural environment, with enriching human experiences every day. Students, fellows and young staff are particularly active on diversity, inclusiveness and equal opportunities, despite the slow changes in rules (and sometimes mind-sets) that unfortunately are physiological within a large inter-governmental organisation. There are, however, improvements that I hope will be considered in the near future; as in the motto proudly worn on our t-shirts at Paranal, “People are the Stars”. The friendly and informal atmosphere is a precious asset; even though senior staff are very busy with their duties, they always have time for instructive chats and advice; and with two other Fellows, I am having fun organising a workshop on “Cosmic Beacons”. As the “job hunting” season approaches, I can hardly realise that two years have already gone by; the clocks tick so quickly here!