



Reach New Heights

Fellowships in
Germany or Chile





eso.org/fellowships

"As an ESO fellow I decided to split my functional work between outreach at the ESO visitor centre and planetarium (the ESO Supernova) and observing at APEX. Being an observer at APEX is a unique experience. I supported a varied set of observing programs, but also witnessed first-hand the interplay between science, engineering and politics which lies at the core of a successful observing facility. At the ESO supernova, I contributed to developing content for planetarium shows, which helped me to think about my work as an astronomer in a broader context. " – **Francesco Belfiore**

"For my functional duty during my fellowship I was given the opportunity to assist the Instrument Scientist working on the upgrade project for the CRIFES instrument. As primarily an optical spectroscopist, this amazing experience provided me the unique chance to not only gain insight into instrument design and the challenges faced for these types of projects, but it also furthered my knowledge about infrared spectroscopy and the related ground-breaking science. The best aspect though was the education received through interaction with the talented team here at ESO and within the collaboration," – **Jason Grunhut**

"Working with the ALMA team has given me opportunities to contribute to ALMA software development projects. I have worked with ALMA team members to make tools both for the broader community and for ALMA staff. The experience has given me a great deal of insight into how large projects are run." – **Adam Ginsburg**

"As an enthusiastic observer, the most enjoyable part is observing and looking at fresh data. At the European ALMA Regional Center, I enjoy serving as an Astronomer on Duty (AoD), contact scientist (CS), and data analyst for QA2, which means I visit the ALMA site in Chile regularly, communicate with ALMA users about updates of their observing program, reduce fresh ALMA data right after observations, and make data products deliverable to PIs. ALMA is a revolutionary telescope and I feel privileged to be part of the team making it work." – **Ke Wang**

What makes the ESO Fellowship Programme unique and attractive

As the foremost ground-based astronomy organisation and the world's most productive observatory with three cutting-edge observing sites in Chile, ESO is clearly a special place to work and to do astronomy. ESO offers unique opportunities for Fellows that cannot be obtained elsewhere:

- ESO Fellowships are well supported research positions that allow young researchers to blossom as independent scientists.
- ESO provides an innovative and creative environment where Fellows are mentored, valued and empowered to make an individual contribution.
- Working closely with ESO's facilities and staff astronomers provides a unique catalyst for astronomical research, such that ESO Fellows can develop their own independent programmes and engage in fruitful scientific collaborations with the broader astronomical community.
- The Garching campus, with MPE, MPA, TUM and LMU nearby, provides a genuinely world-class science environment in which ESO Fellows can learn and contribute.
- The Santiago/Chile university and observatory environment provides a lively scientific domain hosting the operations of

many world-leading ground-based telescopes.

- The inclusion in ESO projects and operations through functional responsibilities opens career options for Fellows who want to explore alternative paths in astronomy, such as working at observatories and combining research and functional duties. ESO Fellows have an opportunity to share a truly international environment where they work closely with people from different cultures and disciplines.
- ESO is an intergovernmental organisation and offers an attractive remuneration and benefits package for Fellows, and relocation support for their families.

In summary, there are very few other post-doctoral schemes in astronomy that offer the unique combination of professional and personal development that ESO Fellowship Programme does.

We are proud that former ESO Fellows have moved on to a wide variety of new positions, including professorships at universities, support astronomer positions at international observatories, science communication and public outreach positions, and senior management positions at national and international scientific organisations.



The ESO Fellowship Programme

An important component of ESO's mission is to support a large astronomical community via the design, construction and operation of ground-based facilities. Having active staff scientists who conduct front-line research is critical to provide the best support to this community by pushing ideas and facilities to their limits. ESO has developed (and continues to develop) a unique set of expertise which must be diffused back into the community to educate the next generation of astronomers and to trigger the next wave of instruments and telescopes.

The Fellowship Programme has as core mission to train and prepare this next generation of astronomers by giving them the opportunity to work in a

unique environment where they can consolidate their scientific profile and career, have an in-depth experience with state-of-the-art facilities, and return to the scientific community as ESO ambassadors. Since its inception in 1977, hundreds of astronomers have participated in this scheme and many have moved on to leading positions at universities, observatories and laboratories, diffusing ESO expertise in the Member States and enhancing the organisation's reputation around the world.

ESO's Fellowship Programme is one of the most recognised and successful such post-doctoral research programmes in the world.



The ESO Fellowship Programme is designed to help young scientists reach the next step of their scientific career

by working in a research and observatory environment.

The programme thus aims at helping ESO's Fellows to stretch and learn by

- Developing their scientific profiles and benefiting from a rich and structured scientific environment where they can interact with more senior scientists;
- Becoming mature and independent researchers who can/will develop their own research projects and contribute effectively to collaborative scientific endeavours;
- Getting prepared to take on higher scientific, administrative or managerial responsibilities in future positions.

The Fellowships are first and foremost independent research fellowships and Fellows have ample opportunities to develop new collaborations and projects, and present the result of their work to their peers. ESO Fellows also spend a significant fraction of their working hours contributing to an ESO project or activity. This is a unique opportunity for them to apply their expertise on state-of-the-art developments at an observatory. It is also a way for them to connect to other sub-groups at ESO, including engineers, technicians, outreach specialists or project managers.



“The wide variety of people encountered at ESO makes it a great place to forge connections”

What ESO offers to its fellows

- An Induction Programme is provided to all new Fellows to help their smooth integration into the organisation.

- The Offices for Science foster friendly and scientifically stimulating environments in both Garching and Santiago where innovation and creativity are valued ingredients of everyday work. Fellows are encouraged to take ownership of their fellowship as an aid in their career development, to openly express their ideas and to participate fully in their implementation. Both Heads of the Offices for Science maintain 'open door' policies and take a genuine interest in the well-being of Fellows. Fellows can also channel their concerns and opinions more formally through the Fellows contacts who serves as a liaison between the Fellows and management.

- Fellows receive mentoring from ESO Astronomers concerning their research, development of their technical skills, and their career development.

- ESO has a Development Programme for Fellows to help them prepare for the next steps in their careers. The programme includes trainings such as: communication and presentation skills, project management, basic people management skills, writing skills etc. Specific training and advice are also offered on crafting effective job applications and interview skills.

- ESO also offers opportunities to Fellows to participate in or lead teams in different projects and serve as mentors for Students. This gives ESO Fellows an advantage in an increasingly competitive job market.

- Fellows are encouraged to trigger, lead or contribute to the organisation of ESO workshops and conferences, which are funded by specific budget lines and supported locally. Additionally, Fellows have opportunities to work in, or lead the creation of, science groups, organise lunch talks and Astronomy colloquia, science coffees, etc. and have access to the Science Support Discretionary Funds

- Observing and science trips are well supported, allowing Fellows to enrich their professional profile with first hand observing experience, disseminate their results, network with other astronomers around the world, and serve as ambassadors for the organisation.

The Offices for Science strongly encourage ESO Fellows to visit the other ESO sites (Garching for the Chile-based Fellows, Vitacura for the German-based Fellows). This should be done, when possible, within the first year of the fellowship to make sure the benefit comes at an early stage in this process.



What we expect from our fellows

Fellows at ESO are expected to fully engage in, and contribute to, ESO's scientific and social environment while developing their own profiles as researchers. They should be key actors in shaping ESO's culture and the organisation's development and participate actively in the projects that further ESO's mission.

Fellows are expected to foster collaborations with ESO faculty and students and

to actively contribute to the science-driven nature of the organisation.

ESO Fellows are ambassadors for the organisation when attending conferences, workshops, meetings and other professional or public events. They are encouraged to behave ethically, to promote ESO externally and to provide feedback internally to help improve ESO's programmes.

Last but not least, our Fellows serve as a role model for younger scientists (especially Students) and support their development.

Duration and frame of the programme

The duration of the fellowships is set to 3 years for Garching positions and 4 years for Santiago positions. For the latter, the fourth year has very favourable research conditions to balance the functional work of the Fellows in Chile. This was acknowledged by former Fellows as an important ingredient of the attractiveness of the programme in Chile.

Garching Fellowships

During their fellowships, the Fellows conduct their own independent research for at least 75% of their time and participate in the scientific life of the organisation. Each Fellow names a staff astronomer to be their scientific mentor for the duration of their ESO Fellowship. The choice of their science mentor may be motivated (but not necessarily or exclusively) by common scientific interests. In all cases, Fellows are free to choose their mentor from within the ESO science staff, with the goal for such a link to be a mutual agreement. The science

contact reports briefly (on the science contribution and activities of the Fellow) at the time of contract renewal. During the remaining 25% of their time, Fellows are trained in crucial areas of high-level technology and/or actively participate and contribute to ESO projects, which they select from activities proposed by different departments.

All Fellows are evaluated by the Head of the Office for Science on an annual basis: the second and third year of the Fellowship are granted after a review of the Fellow's performance that takes into consideration scientific and functional aspects. A one-to-one discussion takes place between the Fellow and Head of the Office for Science to give feedback and discuss possible areas of improvement. Based on the recommendations of the Fellow's science contacts and functional supervisors, and the one-to-one discussion, the Head of the Office for Science takes a decision regarding the Fellow's contract extension.

The functional work, after being approved by the Head of the Office for Science, is a commitment and contribution to an ESO project or task. In Garching, the guideline is (a maximum of) 25% for each Fellow. Garching Fellows are welcome to spend more time on their functional work, although this should be carefully discussed with the Head of the Office and project manager in the context of the project itself, and more importantly regarding the career development of the Fellow. The nominal 25% is an average which can in principle also be spread over the full Fellowship if relevant.

Chile Fellowships

During the first 3 years, the Fellows conduct their personal research at the Vitacura Office in Santiago for 50% of their time and participate in the scientific life of the organisation. As in Garching, each Fellow has a scientific contact among the ESO science staff. For the remaining 50% of their time, the Fellows are assigned either to the Paranal

Science Operations department (with 80 nights within a 12 months period at the Paranal Observatory) or to ALMA operations. Contracts are granted on a yearly basis by the Head of the Office for Science upon evaluation of the Fellow's scientific performance and recommendation of the Fellow's functional supervisor.

During the fourth year several options are provided. The Fellow may be hosted by a Chilean institution where she/he will be eligible to apply for time on all telescopes in Chile through competition for Chilean observing time. Alternatively, the Fellow may choose to spend the fourth year either at ESO's astronomy centre in Santiago, at the ESO Headquarters in Garching or at any astronomy/astrophysics institutes in an ESO member state. There are no functional duties during the fourth year, except in the case that the fourth year is spent at ESO/ Chile where fellows have to carry out functional work up to 25% of their time (i.e., up to 40 nights).

Some functional work carried out by current Fellows

Fellows provide not only a crucial support to the operations at the ESO Telescopes, such as:

- **Support Astronomer at Paranal**
- **Support Astronomer at APEX**
- **ALMA Commissioning and Science Verification**
- **ALMA Astronomer on duty**

but they also contribute to the activities carried out at the Garching Headquarter. For example:

- **VLT service mode operations:** support the Instrument Science and Operation Team in assisting users of the VLT.
- **VLT instruments:** test and define software, reduction pipelines.
- **ALMA Regional Center:** test the CASA software - reduction and quality assurance of ALMA data.
- **Observing Programme Office:** development of new strategies for the future system of dealing with the observing proposals, including the way they are submitted, processed and handled internally.
- **E-ELT Science Office:** developing the science case and updating accordingly the Top Level Requirements for the project.

This list is non-exhaustive, and only intended to give an idea of the diversity of functional works that you can carry out during the ESO Fellowship. Past ESO Fellows have engaged in activities such as: contributing to the development of Public Surveys, working within our Outreach Department, helping with the commissioning of new instruments, contributing to the development of new software (pipelines, visualisation, testing observation tools, participating in the operational concept for adaptive optics, etc.)!

Being part of ESO projects is a unique experience for Fellows!



Fellows Development Programme

Having traced the development of many former and current ESO Fellows, we know that being an effective and successful scientist in the area of professional astronomy requires more than just technical and scientific knowledge in a specific field.

We therefore aim at supporting the personal development of ESO Fellows to complement the current scientific part of the programme.

The aim of the Fellows Development Programme is to deliver a programme over a defined period of time which results in the Fellows preparedness for employment in academia, international organisations or even industry.

The Fellows Development Programme covers the following aspects:

- Time and Priority management: refreshing basic skills to organise the work-life balance of the fellows and to structure their work effectively

- Project management and Management of People: many ESO Fellows will take multiple responsibilities in ambitious projects or lead a team after leaving the organisation. It is therefore important for them to have a basic understanding of people and project related skills.

- Scientific writing and Presentation skills: both are critical in a researcher's career and foster their communication skills. Communication skills are essential, not only



for the research itself but also to develop a good network, be successful in the competition for grants, and get own projects selected.

- Effective networking: today's professional astronomers are increasingly benefiting from techniques developed in marketing strategies. Networking skills are a critical asset for modern scientists.

- Career Coaching: this module is delivered every year and covers the following aspects:

- Creating winning CVs and Cover letters
- Interview skills

Most of the programme is delivered by an external provider. Partly, internal senior scientists and/or Human Resources participate at parts of the modules to support the learning.

Contacts

| | Garching | Chile |
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Conditions of Employment

<https://www.eso.org/public/jobs/conditions/fellows/>



