

## This autumn, the IAC is welcoming a new group of researchers as part of Fundación Occident's Visitor Programme

The Fundación Occident's Visiting Researchers Programme at the Instituto de Astrofísica de Canarias (IAC) continues with the arrival of a new group of researchers from various centres around the world.

These researchers span a wide range of disciplines, from cosmology and particle astrophysics to stellar physics, galaxy formation, and planetary systems. Their presence and collaboration with the IAC's research staff will enhance the scientific activity of both the centre in the Canary Islands and the guest researchers and their home institutions, strengthening existing ties and fostering research networks in an increasingly multidisciplinary and international landscape.

As the year draws to a close, the IAC will host several visiting researchers: **Benjamin Grinstein**, an expert in Cosmology and Astroparticle Physics from the University of California, San Diego; **Leticia Carigi**, a researcher in the Milky Way and the Local Group from the Astronomy Institute at the National Autonomous University of Mexico; **Joachim Puls**, a Stellar and Interstellar Physics researcher from the University Observatory Munich; **Evanthia Hatziminaoglou**, an expert in Galaxy Formation and Evolution from the European ALMA Regional Centre; **Rob Fender**, a Stellar and Interstellar Physics researcher from the University of Oxford; **Marc Pinsonneault**, also a researcher in Stellar and Interstellar Physics from Ohio State University; **Thomas Henning**, a researcher in Planetary Systems and the Solar System from the Max Planck Institute for Astronomy in Heidelberg; and **Carlos José Díaz Baso**, a Solar Physics researcher at the Rosseland Centre for Solar Physics - University of Oslo.

The director of the IAC, Valentín Martínez Pillet, states, "The international scope of this centre makes it a magnet for researchers from around the world. This is part of the centre's core identity and is further reinforced by programmes like the one set up with Fundación Occident as part of the Severo Ochoa Programme. We are truly delighted to welcome this research talent and to see our international ties reinforced through these visits".

From Fundación Occident, director Ignacio Gallardo-Bravo Carreras adds, "Our commitment to research in Spain is reflected in this programme, which seeks to strengthen the capabilities of local teams through exchanges with internationally renowned experts. The IAC, a recognised global leader, operates in the unique environment of the Canary Islands, ideal for astrophysical observation, and has achieved standards of excellence that are held in high esteem by Fundación Occident Visiting Researchers".

During their stay, the visiting researchers will hold seminars and talks open to the scientific community, in which they will share their knowledge and research findings. They will also collaborate closely with IAC researchers on joint projects, and in doing so, promote knowledge transfer and the creation of new international collaboration networks.

## Collaboration and analysis

Such is the case of **Evanthia Hatziminaoglou**, a specialist in Galaxy Formation and Evolution at the European ALMA Regional Centre, who states, "This visit allows me to work calmly and for an extended period with my collaborators at the IAC, something that would otherwise have been impossible. At last, we can analyse our high-quality ALMA data, publish our findings, and launch new projects".

**Hatziminaoglou** explains, "After a long period of administrative duties at my home institution that separated me from my research more than I would have liked, I now also have the chance to attend numerous scientific talks and group meetings, actively contribute to these activities, and once again feel the excitement of research".

This researcher has also organised the [Spanish ALMA sessions](#). "This is the first time that an event of this kind for ALMA users has been held in Spain, and thanks to this visit, it can be organised effectively with the involvement of several IAC staff members. In other words, this setup fosters collaboration and leads to significant benefits for both the visitor and the host, and I am immensely happy to have had this opportunity".

## Novel, in-depth knowledge

**Leticia Carigi**, a researcher from the Institute of Astronomy at the National Autonomous University of Mexico specialising in the Milky Way and the Local Group, shares a similar experience.

"Over these months, I have delved into new topics thanks to the in-depth and meticulous knowledge of my collaborators at the IAC. The interaction with researchers and students has been essential to the project's development, as in-person meetings enhance creativity and foster innovative approaches by sharing and integrating skills in a team setting", explains Carigi. She adds, "This stay has allowed me to return to my second home, both academically and personally, after missing it for nearly a decade".

The researcher from Mexico expresses her gratitude to "Fundación Occident for making this stay possible—something that would have been difficult to achieve with funds from countries currently facing challenging situations, like the one I live in".

## Scientific progress

**Joachim Puls**, a researcher in Stellar and Interstellar Physics at the University Observatory Munich, is also a participant in this visiting programme. He shares his experience, stating, "While this is not my first visit to the IAC in La Laguna, Tenerife, it is certainly one of the longest, as I'll be staying for five weeks".

The researcher recounts that his "collaboration with the IAC began in the early 1990s, after Dr Artemio Herrero, a professor at the University of La Laguna and current Education Coordinator at the IAC, and I completed our respective doctorates in Munich, Germany, working in the same office. Since then, we have continued our work on atmospheres and winds in massive stars, and I have expanded this collaboration to include his former students, particularly Dr Sergio Simón Díaz, now leading his own research group at the IAC. Together with him, his students, Carlos Martínez Sebastián and Alba Casasbuenas Corral, and Dr

Yeiisson Martínez Osorio from the Isaac-Newton Group (ING) in La Palma, we are conducting a joint project at the IAC on testing what are known as model atoms (a numerical representation of electron levels and all related transitions).

This work will allow us to precisely diagnose the metal content on the surface of massive stars (mainly carbon, nitrogen, oxygen, and helium) using quantitative spectroscopy, so that forecasts can be made of the evolution of massive stars, which remains unknown in many important aspects.

To this end, “during my visit to the IAC, I was also able to help finalise a proposed publication by Carlos Martínez Sebastián and his collaborators for the journal *Astronomy & Astrophysics* that presents the detection of massive

stars with a highly unusual combination of surface helium and nitrogen content. The hypothesis is that these elements are the result of prior interactions within binary systems. My first few weeks here have already been very productive, and I would like to express my gratitude to Fundación Occident for making this possible”.

The collaboration agreement between Fundación Occident and the IAC began in 2013, coinciding with the IAC's initial accreditation period as a Severo Ochoa Centre of Excellence, a distinction awarded by the Spanish government to recognise, reward, and promote research in high-level national science centres. In this decade of collaboration, the programme has made it possible for more than 50 internationally renowned researchers to stay at the IAC.

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**About Fundación Occident**

Fundación Occident, formerly Fundación Jesús Serra, is a private non-profit entity, created in memory of Jesús Serra Santamans, a renowned businessman and patron, who was the founder of GCO (Grupo Catalana Occidente). Its activity consists of developing and supporting initiatives in the fields of research, business and teaching, social action, sport, and promotion of the arts, with a common objective: responsible commitment to society.

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