Astro Homus: Revealing the Astronomers behind the Science

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Astro Homus is a project that focuses on individuals behind astronomy research. It aims to present scientists not as lone wolves with almost superhuman skills, as is so common in the current media, but as people who the reader can relate to as human beings. Using the language of photography and the personal stories of scientists, Astro Homus reveals the human dimension of astronomy. Through the project's journey across three countries, addressing questions ranging from the biggest unknowns to the most personal matters, the public is presented with a glimpse of what it is like to be an astronomer. In doing so, we hope to bridge the gap between researchers and non-researchers, and to contribute to an inclusive view of the astronomer, and indeed of astronomy, in society.

Introduction

There is a great divide between those who spend time watching the skies, reading about astronomy, or discussing it with friends, and those who show no interest in it at all. Most outreach activities try to engage the public by providing new information or new experiences within the realm of the subject, but these often appeal essentially to people who are already interested in the topic. Those who organise regular outreach events are very familiar with the idea of meeting the same faces, time and time again. People who regard astronomy or science as unimportant tend to remain unconcerned about it.

It is remarkable — and dangerous — that while our society does value physics and astronomy, it often feels as if it is mostly uninterested in the subject matter itself (Miller, 2000). Physics and astronomy are not part of most people's everyday lives and they seldom relate emotionally to it (Michaels, 1996). In many countries in Europe science seems to be unappealing to students and the uptake of subjects like physics and maths is fairly low[1]. Misconceptions about what it means to be a physical scientist that are fueled by the popular media do not help with this and create a sense that it is a subject largely populated by geniuses and mavericks.

Using the readily available material from high-profile scientists such as Hawking or Einstein, the scientist is often portrayed by the media as a lonely individual who has achieved recognition through their individual work. This directs the attention of the audience to very individual and prominent stories of success, often supplemented by dramatic interpretations that present scientists with either heroic of villainous traits. While this is a good recipe for engaging stories and commercial success, the scientists who come to life in such depictions are not representative of the community as a whole. By showing scientists as the complex, multidimensional and flawed human beings that we all are, Astro Homus establishes an emotional bridge to people, and thus to science, that is lacking in the classic depictions.

Capturing stories: The book

Astro Homus combines biographical portraits gathered through testimonies across three countries and compiles them with photographs from the experienced lens of photographer Susana Neves[2]. The project took off with 2000 euros of funding from the Portuguese Directorate General of Arts. It was supported by the Centre for Astrophysics at the University of Porto, Portugal (CAUP), who provided most of the manpower behind it, and the Centre for Astronomy and Astrophysics at the University of Lisbon. Since the project's inception the institutes have merged to form the Institute of Astrophysics and Space Sciences.

The project team worked at an international level with the National Galileo Telescope on La Palma, Canary Islands, and the Astronomy Observatory at the University of Geneva, Switzerland. These institutes opened their doors to the project, making it possible. The ongoing collaborations in the three institutes allowed us to come into contact with 29 researchers who kindly agreed to contribute their time,

Figure 1. *Starting from CAUP, the exhibition travelled across Portugal. Credit: Nelson Miranda*

Figure 2*. Alexandre Cabral, Institute of Astrophysics researcher and member of the Laboratory of Optics, Lasers and Systems hard at work. Credit: Susana Neves*

***Figure 3**. Carlos Alarez, telescope operator of the Gran Telecopio Canarias, preparing for an observing night in the control room. Credit: Susana Neves*

testimonies and pictures to the project. The selected institutes from our network are located in different countries, allowing for a wider cultural diversity, and the topics discussed were chosen deliberately so as to give a cross-section of the community as a whole.

***Figure 4.** Monika Lendl, postdoctoral researcher at the University of Liège, in Belgium. Credit: Susana Neves*

The aim was to engage in a discussion with common topics that could be used to connect the interviews of the different scientists, and organise the interviews around major themes that would unfold as the book progressed. The conversational perspective and the existence of shared dialogue threads allowed us to remove the interviewer from the scene completely, and the scientists were understood as talking directly to and with the reader. The creation of such a structure required a significant amount of material to select from for editing; moreover, as the testimonies were collected, it became necessary for the interviewer to direct some discussions in order to ensure the continuity of the common threads connecting the whole material.

For several months, we discussed with astronomers how they saw astronomy and the society they are part of. We collected insights on topics as diverse as "What is working in an observatory like?" to "The role of women in astronomy". We told a chronological story that addressed astronomy as a whole field as well as specific areas like the emerging field of exoplanets. The latter, although a young field, has already attracted a significant number of researchers in Portugal and relates to people in a way that few other topics do. We explored the questions that will be raised by the discovery of a planet like our own, and used the momentum gained from this to explore the deeper questions of what we expect from astronomy, and ourselves. These testimonies were compiled into a bilingual book in Portuguese and English, covering our project across three countries[3].

Travelling faces: The exhibition

Alongside the book, Susana Neves produced a photographic exhibition which travelled across Portugal, showing the protagonists of our project. With a wealth of experience of stage photography and different kinds of portraits, Susana's perspective showed the rich human dimension behind research. The tour route for the exhibition aimed preferentially for small cities and interior venues[4] that typically have fewer cultural events and only afterwards headed back to the large cities of Lisbon and Porto. The exhibition was visited by approximately 4200 people, and now that the Portuguese tour has officially ended, the exhibition will visit locations close to the international partners.

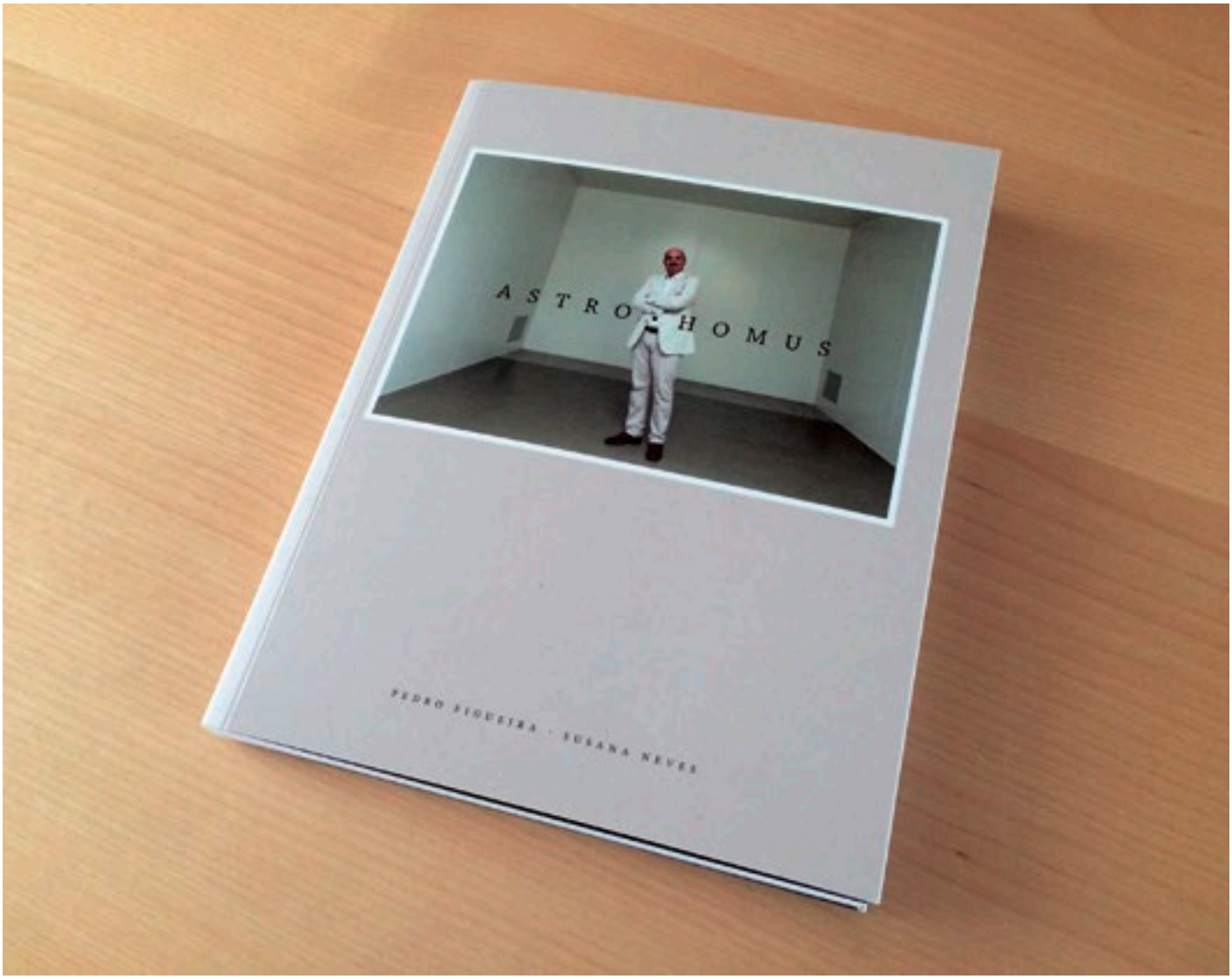

Figure 5. *Astro·Homus book cover. Credit: Susana Neves*

Lessons learned

We learned several important lessons from this project. First and foremost, that we had underestimated the work necessary to collect all the material and put it together. Making the travel arrangements and organising meetings in order to reach a wide number of participants of different ages, fields and nationalities, and then, later, organising and transporting a photographic exhibition are two particular aspects that took more time and resources than planned. But it did pay off. The ability to engage people in a different kind of discussion, about what astronomy is and who astronomers are, captivated many people beyond the usual groups of people who are already interested in astronomy. Being at the interface between science and the arts, the project appealed to many for its artistic dimension, and people interested in this aspect formed a large fraction of the visitors to the exhibition.

At several book release events many attendees were surprised by the inherent proximity between the astronomer and the audience. The audience was expecting a more standard one-sided presentation, with a typical fixed interview-plus-portrait structure for each astronomer. Instead they found themselves immersed in an ongoing dialogue, with several unwinding threads. Although there was no formal evaluation of the events, the feedback received was overwhelmingly positive, and most people were engaged and interested in the discussion, the testimonies, the pictures and the stories behind them.

Astro Homus, both book and exhibition, has shown us that alternative forms of communication can reach beyond the usual target audience of astronomy-minded people, by emphasising the human side of science. In this case, the use of an art form to attract and reach out to people worked remarkably welll.

Notes

[1] In the UK the physical sciences ranked tenth (2014) in terms of the popularity of degree subjects. https://www.hesa.ac.uk/pr/3456-press-release-211

Sample testimonies from the Astro Homus book

"Going observing is, for me, one of the most amazing parts of being an astronomer. While I am at the observatory, I work all the time (I have, what, 15 minutes while having my breakfast in the morning?), but it's just a great experience. For two weeks, you dedicate yourself completely to what you do, and it is a wonderful experience. The funny thing (that occurred to me while I was observing two months ago in Chile) is that you have a very rigorous schedule. You wake up at four p.m., you are at the telescope by five p.m. (the latest), you do your calibrations, have dinner, do this and do that, day and night. But you are actually super-happy doing it, and you don't feel that you're missing out on a lot of things. Perhaps it is so because you know it's only going to last for two weeks, and then you'll have your free time again, your life and friends. But people at the observatory are friends anyway; you go there and meet the same people again and again, it feels a bit like a family. You arrive there and they go "Monika, how are you doing? Haven't seen you in a year...", it's a bit like coming home, too.

I think what makes it so easy is that it has a purpose. You have a job to do and you're there to do it. Calling it a meditative experience would be a bit of an overstatement but, somehow, we're like monks that live in a secluded monastery following a very strict time schedule, but who are happy doing it. After completing a good observing run, I have a great feeling of achievement. If I know a lot of people got good data, not only myself, I am really happy. I think that is a really important point: that when you are there, you are actually working for other people, too."

Monika Lendl, postdoctoral researcher at the University of Liège, in Belgium.

"In my astronomy lectures, I present to the students the following perspective: all the questions about the Universe are questions to which the Universe itself is trying to answer through us, because we are part of it. Therefore, we are trying to answer questions about what we are. The Universe built this little thing called a human being, which is now trying to understand its own nature. To me, this raises serious doubts that we will ever reach an answer. In our daily life, we would definitely say that it is impossible for you to make an evaluation of yourself because you are always biased and because there are always limitations in your perspective. When we are studying the Universe, there is also a fundamental problem: the Universe is trying to understand the very Universe itself. Maybe this will get us nowhere.

But that is alright: we keep studying, trying to understand and building models about what the Universe is like. I am fine with that; I do not know whether people who are faced with this issue are also fine with it, though. [This vision] may lead to philosophical problems: I will never know where I came from or where am I going to, it is impossible. I will build a model that pleases me, I will realise it is not completely correct and will try to change and improve upon it but, yet, it is still the same thing around itself, because we cannot look at it from the outside. Perhaps there is a fundamental inability to reach this goal of understanding the Universe. But I am at peace with that."

José Manuel Afonso, coordinator of the Institute of Astrophysics and Space Sciences.

[2] Website of Susan Neves: http://www.susananeves.com/

[3] The project book (ISBN 978-972-98162-1-5) can be ordered and sampled for free here: http://astrohomus.astro.up.pt/livro

[4] For a detailed record of the exhibition see: http://astrohomus.astro.up.pt/tagged/itinerancia

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Biographies

Pedro Figueira is a full-time researcher working on the subject of extrasolar planets. His work focuses on the development of instrumentation and software for the detection of low-mass planets. As an extension of his research work, Pedro spends part of his time on outreach activities that go from talks to participation in projects such as Astro Homus.

Susana Neves has been a freelance photographer since 2000 and has added portrait and documentation to the core focus of her work, which is stage photography, including theatre, music and various types of performance. She has participated in solo and group exhibitions in Portugal, Spain and Brazil.

Pedro Mondim is involved in many astronomy outreach activities for the general public and especially for students. He regularly presents planetarium sessions, develops new experimental activities and guides students in the hands-on laboratories. He previously worked as a trader in investment banking, while finishing his master's degree in astronomy, and he is also currently finishing a medical degree.

Paulo Pereira has been a communication designer since 1992, sharing his professional activity between design consultancies, university teaching and freelancing, with a special interest in the field of knowledge visualisation.

João Retrê currently develops astronomy educational content for teachers and students, and outreach activities for the general public; João is also the creator and developer of several innovative projects that aim to involve the academic community and general public in active astronomy communication.

Filipe Pires has a degree in astronomy from the University of Porto and has coordinated the Porto Planetarium's activities since 1997, being responsible for the production and presentation of planetarium shows, production and presentation of hands-on laboratories, and a wide diversity of public outreach sessions.

Ricardo Cardoso Reis is involved in strategy for the promotion of scientific culture, by producing and presenting planetarium shows, writing press releases about research, presenting telescope observation nights (and days), and guiding hands-on activities.