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Maria Cruz

A New Astrophysics Editor at Science

Elisabeth Pain
United Kingdom
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As a Ph.D. student in astrophysics, Maria Cruz picked a very broad research topic: distant radio galaxies. "One could think that the topic of her own research work ... is so fascinating and at the same time so difficult that one could work on it a life long," Michael Grewing, an astronomer retired from the *Institut de Radio Astronomie Millimétrique* in Grenoble, France, writes in an e-mail to *Science Careers*. "It seems, however, that Maria's interests are even broader than this."

Indeed, after a fellowship with the U.K. Parliament, Cruz did a postdoc that entailed coordinating a road map for European astronomy research over the next 20 years, to which Grewing participated. Cruz is about to make further use of her broad interests as the new astrophysics manuscript editor at *Science*. "Though I am not going to do research, I am still going to be in touch with the latest developments," says Cruz, age 32. "That's going to be very exciting."

CLEAR SKY ABOVE

Cruz has always been fascinated with science, and choosing just one field has been a challenge. As a child growing up in Portugal, she decided to become a chemist after reading Marie Curie's biography. But during high school, "I was reading a lot of books about Einstein and particle physics and I thought, 'Now I am really interested in physics.'" So, in 1994, she embarked on a 5-year physics degree at the *Instituto Superior Técnico* at the *Technical University of Lisbon*. All along, astronomy beckoned. Her "fascination [for] the sky has always been there," she says.

During the final year of her degree, in 1999, Cruz spent 9 months working on the *Supernova Cosmology Project* at *Lawrence Berkeley National Laboratory* in the United States with funding from the Portuguese *National Foundation for Science and Technology*. It was "quite an exciting topic at the time" because researchers with the Supernova Cosmology Project and elsewhere had just discovered that the universe is in accelerating expansion. *Science* named the finding *Breakthrough of the Year* for 1998.

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After graduation, Cruz rejoined the *Instituto Superior Técnico* as a research technician, helping set up a supernovae group. "It was not easy," Cruz says. "I was very young and [was] expected to teach the whole group the techniques I had learned." But, she adds, "it was good because I felt I contributed. It made me feel confident." Scientifically, too, it paid off: In the 7 months Cruz stayed there, the new group contributed to discovering seven supernovae.

Cruz was accepted for Ph.D. studies at [Imperial College London](#), [the University of Sussex](#) in Brighton, and [the University of Cambridge](#) but decided on [Oxford University](#). There, with a studentship from the Portuguese Foundation for Science and Technology, she applied statistical and physical models to the study of distant radio-emitting galaxies from billions of years ago. It is "a bit like doing archaeology. You try to understand how the universe [was] in its past ... to understand the present," she says.

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EXPANDING HORIZONS

Cruz was "a very able and hard working student," writes Steve Rawlings, one of her former Ph.D. supervisors, in an e-mail to *Science Careers*. But "mainstream astronomical research requires 'tunnel vision' at points, and although Maria was able to maintain such a focus during her Ph.D., I knew she was keen to take on a more strategic, wide-ranging role after graduating. She also interacts well and easily with people, which is not an especially important skill in mainstream astronomical research."

Indeed, Cruz concedes, at the beginning of her Ph.D., "I was incredibly fascinated and enthusiastic." But soon "I realized that I really love science but not spending my time just focusing on a particular aspect of it."

While poking around on *Science Careers*, Cruz [read](#) about a scientist who found a job at the [U.K. Parliamentary Office of Science and Technology](#) (POST). "I was trying to read about different opportunities because I knew I wanted ... something that was very [closely] related to science, but I didn't want to do research itself. It sparked my interest in science policy," she says. With a fellowship from the Portuguese [Calouste Gulbenkian Foundation](#), Cruz spent 3 months at POST helping physical sciences, biology, and health science advisers do background research and gather data. "I really loved this experience, coming from a normal lab where all the conversations are about your subject. ... I was craving to talk about different things," Cruz says.

Her fellowship at POST pushed her to be more of a science generalist. With scientific training, you can easily get the gist of other subjects, she adds: "That was a very valuable thing to realize." She also had to learn how to put scientific research in context. "In stem cell research, the interface with society is very obvious," she says. But politicians also want to know how astronomy will affect their lives and the lives of their constituents, she adds.

A LEAP FORWARD

The following year, an opportunity to get involved in astronomy policy came up. [ASTRONET](#)--a network of European funding agencies and research organizations set up in 2005 to develop a strategy for European astronomy over the next 20 years--was almost done identifying key scientific priorities, and program officials were looking for a postdoctoral scientist to help coordinate the development of a road map to build the necessary infrastructure. "That was a great opportunity because it's a transition job," Cruz says.

Since January 2007, Cruz has been the main contact for the ASTRONET Roadmap's scientific panels and working groups. She helped organize events and helped produce a first draft of the Roadmap. Keeping busy participants on tight deadlines and homogenizing chapters written by different groups were routine issues.

Cruz enjoyed the "feeling of being the conductor" of an orchestra. "I have learned how astronomy is organized, managed, and funded across Europe. I have also gained a broad overview of the field, in terms of what are the key scientific questions that need to be answered and the capabilities required to do so," she says.

But it was "a very, very demanding job," she admits. She took some outreach and

communication courses, but she had to pick up project management, event organization, and people skills as she went along. Her Ph.D. studies, she says, prepared her for these and other challenges: "You learn how to build your tools as you do the job," she says.

Among Cruz's strengths were a great sense of organization and a clear scientific overview of the projects, Jean-Marie Hameury, ASTRONET project coordinator and deputy director of the [Institut National des Sciences de l'Univers](#) in France, writes in an e-mail. But the job also required some political savvy. "There was a clear and strong opposition and rivalry between two projects. ... Avoiding a destructive confrontation was clearly a challenge," Hameury adds.

CLOSER TO SCIENCE

Cruz's scientific savvy and coordination skills will come in handy in the next phase of her career: Starting in October, Cruz will take a position at *Science* as an associate editor in astrophysics, astronomy, and planetary science. Cruz found the selection process intense. She spent half a day at *Science*'s European office in Cambridge, U.K., then flew over to Washington, D.C., to spend a full day at AAAS (American Association for the Advancement of Science) headquarters. She gave a presentation about her research, edited some test articles, and talked to everyone in the office. "You have the opportunity to understand, 'Will I like to work here or not?'" she says.

"When we look for manuscript editors we like to appoint people who have a Ph.D. in an appropriate subject, plus postdoctoral experience and a good publications record, and a wide interest in scientific areas beyond their immediate research," writes *Science* International Managing Editor Andrew Sugden in an e-mail. A familiarity with current techniques and an insider's understanding of the interesting directions of research are also important, Sugden adds.

A former editor-in-chief of [Astronomy and Astrophysics](#), Grewing anticipates that Cruz will learn a lot, like he did, from "the pleasure ... to see the results obtained by thousands of scientists on many different, fascinating topics, and to help ... make them visible to a wider community," he says. For Cruz, this sounds like just the right balance between closeness to the scientific community and sufficient distance to admire the astronomical landscape.

<p>Elisabeth Pain is contributing editor for South and West Europe.</p>	<p>Comments, suggestions? Please send your feedback to our editor.</p>
<p>Photo (top): courtesy of Maria Cruz</p>	<p>DOI: 10.1126/science.caredit.a0800105</p>

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