

# TURNING OTHERS ON TO SCIENCE



Julia Tagüeña

For some women scientists, keeping their work at work is not enough—they wish to share their love of science with the world outside. Whatever their talents, it seems there's a way to take science to the broader community.

**A**t the Energy Research Centre at the National Autonomous University of Mexico, in Mexico City, **Julia Tagüeña** is a professor of physics with a passion for communication that equals her fascination with science. The seeds were sown when she took a sabbatical in 1991 to create the Energy Hall of Universum—the university's Museum of Science—of which she is now director. She has since become a respected science communicator, reaching out to both school children and the general public via talks, television, and radio.

"I have been asked many times by teenagers, after giving a talk, if doing science will allow them to have a family as well. I tell them that to have a career is very compatible with having a family: you can be a very interesting mother for your children."

To encourage girls, she is currently involved in preparing a series of children's books which include stories of Mexican women scientists.

"Young women in my country are more aware of what they can do and are not as concerned as my generation about what society expects."

Although she has witnessed discrimination against women scientists, Julia believes that things are looking up for them.

"My country's biggest problems are poverty and the lack of opportunities for many Mexicans. In this context, educated women have more opportunities in Latin America than they have in very developed countries. It is similar to what happened during the Second World War in Europe and USA: as the men went to war, women took their places."



Farida Faouzia Charfi  
with her grandchildren

In Tunisia, too, women are perhaps enjoying more support than elsewhere, according to **Farida Faouzia Charfi**. “I haven’t had a problem as a woman. In the developed countries scientific research is an old tradition, and science is seen as a male activity. But in Tunisia that is not the case because the development of the scientific sector is relatively recent and we don’t have the same masculine image of science.”

As if to illustrate the point, Farida’s three daughters all pursued science-related careers: one is a physicist, a second a medical doctor, and the third an engineer in telecommunications. Nonetheless, Tunisia does have the same “leaky pipeline” as other countries, which sees most young women abandon their scientific careers in favor of home and children, so that only a few women reach top positions.

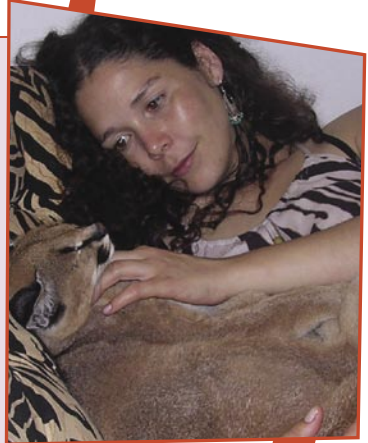
Farida helped to create the country’s first physics laboratory at the University of Tunis in 1975, followed by the first laboratory for semiconductor physics. She has also made astronomy and physics popular with the planetarium at the City of Science museum in Tunis. Her activities now extend beyond borders—she acts as a prominent spokesperson to encourage Israeli and Palestinian scientists to work together on behalf of the Israeli-Palestinian Scientific Organization.

“This cooperation is very important for peace. The situation now is very difficult in these countries, but there are Palestinians and Israelis who are convinced that they can achieve it.”

“I wanted people to take more pride in the country and take some ownership of science.”

Challenging perceptions about science and culture is also a major preoccupation for **Janice Limson**, a senior lecturer in biotechnology at Rhodes University, South Africa, where her research focuses on the development of biosensors for early disease detection and the monitoring of environmental pollution. Janice had a “real wake-up call” when she first left South Africa to do research in the United States and the United Kingdom. “From other people’s point of view, there was no good science [in South Africa]. It was a dark continent. And even inside South Africa people did not realize there was science going on.”

So Janice decided, seven years ago, to create Africa’s “first online science magazine,” *Science in Africa* ([www.scienceinafrica.com](http://www.scienceinafrica.com)), now showcasing African science to 1.5 million readers in 95 countries, including students and school children. Many scientists write for her—often having their first stab at writing for the public. “I wanted people to be able to take more pride in the country and take some ownership of science in Africa. Now I have high school kids writing to me saying, ‘I want to study this,’ and ‘I had no idea this work was going on in South Africa.’”



Janice Limson with her wild caracal, Gaphoof.

**M**eanwhile, **Hester Bijl** at Delft University for Science and Technology in the Netherlands, dispels stereotypical images of scientists for the Dutch public by weekly appearances on a Dutch television quiz show, “How Things Work” ([www.hoezo.tv](http://www.hoezo.tv)). The show, watched by almost one million viewers, features wacky science projects and poses questions to scientific experts. “I like to change the perspective on science: it’s not boring, just old guys, or far-fetched – it’s fun and exciting!”

Hester goes against the assumptions of millions of viewers that only men can be physicists or engineers by being the expert on these subjects rather than on biology or humanities. “I don’t put the focus on my being a female but just on the content.”

In Egypt, too, television has brought science to the masses, thanks to **Farkhonda Hassan**, who is secretary general for the National Council For Women in Egypt and teaches at the American University in Cairo. Until recently, Farkhonda devoted 41 years to presenting a weekly science magazine show on national television. A highlight was being recognized on the street by an elderly woman in a slum district, who asked Farkhonda about the fuel of a ship that was on the show. “I was so happy that an old, illiterate, poor woman was asking me this question.”

She remembers being 12, on a family picnic, when she was fascinated by some rock formations. A family friend explained that the hill they were sitting on was below the sea millions of years ago. “I told him I wanted to be a geologist when I grew up, and all the men laughed. I didn’t know what they were laughing about. So I did it because it was a challenge.”

Now a leading light in politics, she gives speeches about water resources and oil exploration, basing her arguments on science. She is also pioneering the use of information technology for women living in rural communities, to improve the quality of traditional handicrafts. By enlarging their stitches on computer screens, they can see mistakes more easily. The women create their own marketing materials and sell their goods via the Internet, generating more income than before. “We help them on the condition that they send their children to school.”

Once at school, girls in Egypt have no problem, it seems, in passing exams. The cultural traditions dictate that girls stay in at night to study, while boys “can stay out later.” As their grades reveal—in school and in university—girls are outperforming boys.

On a totally different track, **Ahna Skop** at the University of Wisconsin at Madison is both an artist and a geneticist who won one of the US government’s Presidential Early Career Awards for Scientists and Engineers in 2007. She has deliberately chosen a field that depends on a visual medium—cell biology. When in graduate school she began what “a lot of people thought was crazy”: an art show at the International *C.elegans* Meeting. It proved popular, with entries from scientists all over the world of art inspired by their research—such as electron microscope images, charcoal drawings, and even laboratory glassware sculpted into different shapes and filled with colored liquids. The show is now a regular event at the annual conference, and is an attraction for high school students, too. “They get to see what the scientific community is working on and how beautiful it is. I think scientific art is a great way of introducing people of all ages to science.” She adds: “My dream is to curate a scientific art show that would travel the world.”

