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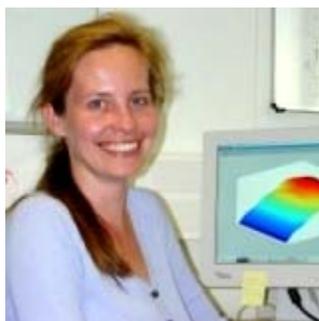
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Barbara Kaltenbacher

Getting Women Scientists to the Top

Chelsea Wald
Belgium
7 March 2008

When Barbara Kaltenbacher started as a professor of mathematics at the [University of Stuttgart](#), Germany, in 2006, she was pleasantly surprised to find that half of the mathematics undergraduates were women. In mentoring these female students, however, Kaltenbacher has discovered that many still don't feel that a career in mathematics is open to them. "Often I hear the question, 'Is it possible at all to have a family and do this kind of job?' " Kaltenbacher says. "Somehow, men do not ask this question."

"Having more women at the top could mean that more barriers in [women's] way are broken." --Adelina Humnic-Orzu, European Platform of Women Scientists

This attitude may stem from the fact that women still hold few top positions in science, not just at Stuttgart but throughout Europe. Whether it's because of self-selection, discrimination, or any number of other factors, European women don't progress to the top echelons of science at the same rate as men. According to the European Commission's [She Figures 2006](#), women earn 43% of Europe's doctoral degrees in science, but they hold only 15% of senior academic positions.

It's at the postdoctoral, early-career stages that many women seem to get off the fast track. So funding agencies in Austria and Sweden have recently dedicated large sums to supporting research by excellent junior-level female scientists to make it more likely that they'll become senior-level scientists. These programs offer a great deal of flexibility in how the funds are used, letting the scientists spend the money where and how it works best for them. Such flexibility is important for many women, who are trying to balance their research with their families' needs. What's more, the chance to realize projects of their own design not only gives grantees a leg up on the competition, it also gives them confidence and an appetizing taste of the life of an independent researcher.

LEADING THE WAY

One such program helped Kaltenbacher, an Austrian citizen, fulfill her desire to have both an academic career and a family. The [Austrian Science Fund](#) offers two programs with a

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combined budget of €5 million per year aimed at launching the careers of excellent female postdocs: the [Hertha Firnberg Programme](#), which started in 1999, and the [Elise Richter Programme](#), which started in 2006. Both provide several years of funding, with the former directed at new Ph.D.s and the latter at more senior-level postdocs aiming to pursue habilitation, the post-Ph.D. qualification that in some European countries is necessary for becoming a professor. The funding for both programs includes a salary at an Austrian university of the scientist's choice, as well as extra funds for travel and materials.

Kaltenbacher applied for the Hertha Firnberg grant in 1999. Two years out of graduate school and keen on becoming a professor, Kaltenbacher was passionate about her work on inverse problems, which she describes as "mathematical modeling in a reverse way," starting with observation rather than first principles. But she was also a new mother, and she was worried about how that would affect her applications for the competitive habilitation spots. So when she saw the Hertha Firnberg Program announcement, she says, "I thought this special program for women would be appropriate for me."

The program gave her the much-needed funds to pursue her research at the University of Linz, where she had earned her previous degrees. Her fellow grantees--there are about 10 per year--also functioned as a support group. "It helped me to say that it's not abnormal to do habilitation ... and have children as well," Kaltenbacher says. After 2 years in the program, Kaltenbacher gave up her funding to have a second child and move to Germany with her husband, an engineer who had landed a permanent faculty position at the [University of Erlangen-Nuremberg](#). There, she won funding from the [German Research Foundation](#) and finished her habilitation also at the University of Erlangen-Nuremberg. In 2006, she took her current post at the University of Stuttgart.

There, she hopes her presence will open the doors for more women to follow her path, especially women who want to have families. "Having more women at the top could mean that more barriers in [women's] way are broken," says Adelina Huminic-Orzu, a project manager at the European Commission-funded [European Platform of Women Scientists](#).

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EARLY-CAREER FUNDING OPPORTUNITIES FOR WOMEN IN EUROPE

Here are some of the fellowships and programs available in Europe for advancing women in science:

[VINNMER](#)

Country: Sweden

Description: Grant for research by nonsenior-level women scientists at a collaborating institution.

Length: 3 years, with up to 2 years at the collaborating institution.

Amount: Approximately €80,000 per year for scientists staying in Sweden; approximately €100,000 per year for scientists moving to Sweden or going abroad (salary is shared between the funding agency, VINNOVA, and the institutions). Funding can be used for travel, childcare, spousal support, etc.

Deadlines: Twice annually.

[Hertha Firnberg Programme](#)

Country: Austria

Description: For postdoctoral research at an Austrian university.

Length: 3 years.

Amount: €52,790 personnel costs per year, plus €8000 for materials, travel, assistance, etc.

Deadlines: Two calls a year in spring and fall.

[Elise Richter Programme](#)

Country: Austria

Description: For postdoctoral research at an Austrian university leading to the habilitation qualification.

Length: 1 to 4 years.

Amount: Personnel costs €59,670, project-specific costs up to €15,000 per year, and €1950 lump sum per child per year.

Deadlines: Two calls a year in spring and fall.

[Marie Heim-Vögtlin Subsidies](#)

Country: Switzerland

Description: For doctoral and postdoctoral candidates at Swiss universities and federal institutes of technology. The program targets women who reduced or stopped their research due to family obligations or as a result of their partner's career development.

Length: Two years, with the option of an additional year.

Amount: The funding provides a standard salary and may cover child-care costs, travel to international conferences, and research consumables.

Deadline: Annually around April 1.

[Daphne Jackson Trust](#)

Country: United Kingdom

Description: Program for scientists (not only women) at U.K. universities or in industry who have taken a break of at least 2 years from a science-, engineering-, or technology-related career.

Length: Approximately 2 years.

Amount: Fellows receive a research salary from program sponsors.

Deadline: Rolling.

[Christiane Nüsslein-Volhard-Stiftung](#)

Country: Germany

Description: Supports graduate students and postdoctoral fellows conducting research in the natural sciences at a German university or research institute. The funds are meant for additional childcare and domestic help.

Length: One year, which may be extended by up to 3 years.

Amount: Up to €400 a month.

Deadline: 31 December.

[Dorothy Hodgkin Fellowships](#)

Country: United Kingdom

Description: Aimed especially at women, the fellowships are for early-career scientists in a U.K. university or a not-for-profit research organization and allow for flexibility such as part-time work and claiming funds for family support.

Length: Maximum 4 years.

Amount: Provides 80% of the research fellow's salary costs, estates costs, and indirect costs. Research expenses are also provided.

Deadline: Annually around 31 January.

[Wellcome Trust Career Re-Entry Fellowships](#)

Country: United Kingdom

Description: For postdoctoral scientists returning to a scientific research career after a break of at least 2 years for family commitments.

Length: 2 to 4 years.

Amount: The fellowship provides a basic salary (as determined by the host institution), research expenses, and, if requested, funding for equipment and retraining.

Deadlines: Twice annually in spring/summer and fall/winter.

SHE KNOWS BEST

Whereas the Austrian grants allow scientists to continue their research in Austria, often at their home institutions, Sweden's [VINNMER program](#) requires the scientists to shake things up: They must spend time at a new institution, preferably abroad. In addition to furthering women's careers, the program has a parallel goal of helping Swedish institutions forge collaborations with other institutions, both within Sweden and abroad. The program even funds female scientists based outside Sweden to spend time at Swedish institutions.

Backed by €50 million over 5 years from the Swedish government, the VINNMER program made its first grants last fall. The grants can be used to pay for housing, childcare, spousal support, and travel, as well as part of the scientist's salary. Indeed, aside from the requirement to move, there are few limits on how the grant money can be spent. "We don't want as a funding agency to ... tell them that 'this is what you should do,'" says program manager Thomas Torounidis. "The female researcher certainly knows what she wants to do and what will benefit her."



Frauke Ecke

Among the first recipients was Frauke Ecke, a landscape ecologist. A German citizen, Ecke went to Sweden as an undergraduate because she preferred the style of education there. As a doctoral student at [Luleå University of Technology](#), she was tenacious, earning her degree in 4 years despite giving birth to two children during that time and struggling with perilous funding problems. In 2004, she got a 1-year postdoctoral position at the [International Institute for Applied Systems Analysis](#) in Austria. Then she returned to Luleå as an assistant professor. Her young family followed her with each move.

In spring of 2007, she applied for the VINNMER Program. The application was different from any other Ecke had ever written because it focused on her. "I really had to be more selfish and write, 'What do I want in the future?'" she says. She won the grant last September, and just before Christmas she moved her family to Uppsala, where she's now conducting research at the [Swedish University of Agricultural Sciences](#) on how mining affects ecosystems.

Ecke says the grant has allowed her and her family some stability, even with the requirement

to move. Since they were able to stay in Sweden, her children have made new friends easily. She says she'll only pursue her career if she can make it work for her family--and, she says, "to accomplish that is not easy, not even in Sweden."

UNUSUAL PATHS

VINNMER and the Austrian Science Fund grants focus on women who are striving for senior scientist positions, in contrast to other programs that focus more on keeping women from dropping out of science altogether. Even so, the programs recognize that even the most promising and ambitious women often follow unusual paths.

Shohreh Maleki, now a Swedish citizen, was born and raised in Iran, earned a doctorate in cell biology in England in 1982, then returned to Iran in time to see her country devastated by the Iran-Iraq War. She also saw her career reduced to ashes as she struggled against sexism in the Iranian scientific establishment.

In 1988, she decided to seek a fresh start in science by going to Sweden to pursue another Ph.D., in genetic toxicology, this one at [Stockholm University](#). After graduating, she landed a postdoc at the [Memorial Sloan-Kettering Cancer Center](#) in New York, then returned to Sweden, to the [Karolinska Institute](#), as a research fellow.



Shohreh Maleki

Last fall, the VINNMER review committee funded Maleki's proposal to collaborate with the [RIKEN Institute](#) in Japan. When the award was made, she was 57 years old. (It's for situations like hers, says Torounidis, that the VINNMER Program refuses to impose an age limit; many early-career programs have cutoffs at about age 40.) Immediately after receiving the award, she was promoted to assistant professor. She hopes her cutting-edge work will ultimately lead to a senior professorial position, although she says she's happy to ride this wave wherever it takes her: "I just can say I'm pretty happy to be granted this possibility of carrying on and doing what I like."

For more about opportunities for women, visit the *Science Careers* [Women in Science index](#).

Chelsea Wald is a science writer currently based in Belgium.

Comments, suggestions? Please send your feedback [to our editor](#).

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