

Displaced scientists strive to restart professional lives in new lands



NICOLE LECHISSA

SYRIA IS JUST BEYOND THESE MOUNTAINS.

But earlier this year, when it became too dangerous for this scholar of gender studies to continue working in her native country, she fled to the UK, where she managed to get a fellowship at Oxford University. She is one of the scholars featured in the 2017 film *Science in Exile*.

Record numbers of scientists are fleeing persecution and conflict. Host universities and communities can benefit from the brain gain.

After earning his PhD in geophysics in Egypt, Ismael Ibraheem returned home to Syria in 2010 to work at the petroleum ministry, where he did groundwater field surveys and environmental studies on groundwater pollution. He was called to do military duty for a year, but a few months in, the uprising that sparked the Syrian civil war began and his service was extended. He heard about academic friends and colleagues being killed. "I felt guilty. It was stressful. I made the dangerous decision to leave," he says. In mid 2013 he deserted. He laid low in Syria for more than two years before getting himself smuggled to Turkey. He is now a postdoc in Germany.

In 2013 Eqbal Dauqan returned to her native Yemen with a PhD in biochemistry from the National University of Malaysia. The next year, as a faculty member at Al Saeed University in Taiz, she helped found the country's first pro-

gram in therapeutic nutrition. Then civil war broke out and attacks on the university killed some of her colleagues and students. Dauqan holed up in her home and other hiding places for eight months, with no work and no income. "I needed to continue my academic journey and to support my family," she says. In 2016 she was able to go back to Malaysia as a visiting scholar thanks to a fellowship from the Institute of International Education Scholar Rescue Fund (IIE-SRF).

More than 65 million people worldwide have been forcibly displaced, about 22.5 million of whom are refugees from conflict or persecution, according to the United Nations Refugee Agency. Some 28 300 are forced to flee every day. No reliable data exist as to the number of scientists among them.

Carmen Bachmann, a professor of business taxation and finance at the University of Leipzig in Germany, is among those who have tried to get those num-

bers. "No one really knows how many academics there are," she says. "The percentage is low. But it's important to recognize who they are." In 2015 she started Chance for Science, a network for refugee academics. Matteo Marsili of the Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy, estimates that perhaps 2–5% of those in local refugee housing have completed at least a bachelor's degree. With so many refugees total, even the small percentage that are scholars and scientists is stretching the resources of the aid organizations that want to help them.

Refugee and at-risk scientists come from many countries and have varied backgrounds. They are fresh degree recipients, early-career and midcareer scientists, and people with many years of experience in teaching, research, and policymaking. They are on sabbatical and don't consider themselves refugees. They apply for refugee status. They flee their homelands in a rush and wind up in refugee housing. They plan their escapes quietly and arrange jobs before leaving their countries. They speak openly about their experiences. They

keep their identities hidden to protect themselves or family members back home. Indeed, one refugee, after being interviewed by PHYSICS TODAY, declined to appear in this story, even anonymously. Besides needing to flee dangerous situations, what they share is a passion for science and a desire to contribute to society. Many of the threatened, displaced scientists hope to return to rebuild their homelands if and when that becomes possible. (To read an interview with Yemeni physicist and former government minister Mustafa Bahran, currently at the University of Oklahoma, see <https://physicstoday.org/bahran>.)

Their varied circumstances require that each scientist's case be handled individually. In the 2017 film *Science in Exile* by the World Academy of Sciences (see page 59 for more information), IIE president and CEO Allan Goodman says his organization's Scholar Rescue Fund asks two questions in considering whether to help a refugee or at-risk scientist: "Are you a scholar?" and "What is your threat?"

Prioritizing risk

Since its establishment in 2002, the New York City-based IIE-SRF has spent some \$25 million to support nearly 750 scholars from 58 countries. From 2015 to 2017, applications to the fund increased by more than 50%. As the most respected people in the community, Goodman says in the film, scientists are disproportionately targeted by terrorist organizations and repressive governments, which may operate on the principle that "if we can intimidate the scholar, the leading mathematician, the leading chemist, the leading biologist, we can silence a whole community." Of the scholars receiving IIE-SRF support last year, 37% were in the natural and applied sciences. Many were established faculty members who moved from forefront positions in their home countries to visiting positions akin to postdocs.

This is the busiest time ever for the Council for At-Risk Academics (CARA), says Martin Thornton, the head of development. The UK-based organization was formed in 1933 to help Jewish scientists escape Nazi persecution.

Today, CARA partners with 130 universities, most of which are in the UK. At present, Thornton says, CARA is supporting—usually with additional financial help from the host institution—

290 fellows in the UK plus 350 family members. They come from 28 countries; the largest numbers of displaced scholars are from Syria and Turkey.

In life-or-death situations, "we are not turning people away," Thornton says. "But we are prioritizing risk." Whereas in the past CARA has helped "individuals who made it here on their own steam," he says, "the priority now is to help people who are most in peril." For the first time, CARA has launched a campaign asking UK academics to sup-

port their at-risk peers. If 10% of them gave £20 (\$28) a year, "that could transform how many people we help."

Scholars at Risk (SAR), whose headquarters is located on the campus of New York University, finds hosts for scholars and scientists from its global network of more than 500 university partners. Last year it placed 158 scholars, the highest annual total since SAR began in 1999, according to program associate for protective services Shreya Balhara. It also arranges letters of recommendation,

Programmable DC Power Supplies to 20kV



SRS has added four new high voltage power supplies to the PS300 series — -10 kV, +10 kV, -20 kV and +20 kV. All PS300 series supplies offer a wide range of features including programmable current and voltage limits, selectable overload response, short circuit protection, and a GPIB computer interface.

- **0.001% regulation**
- **0.05% accuracy**
- **1 volt resolution**
- **0.0015% ripple**
- **Limits & trips**
- **GPIB interface**



25 Watt Power Supplies ... \$1495 (U.S. list)

- **PS310 ±1.25 kV**
- **PS325 ±2.5 kV**
- **PS350 ±5 kV**

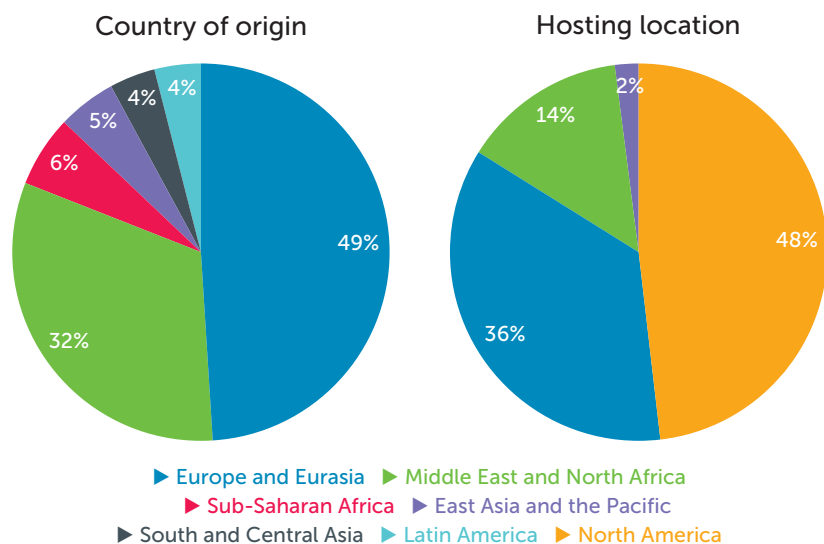
10 Watt Power Supplies ... \$2595 (U.S. list)

- **PS355 -10 kV**
- **PS365 +10 kV**
- **PS370 -20 kV**
- **PS375 +20 kV**



SRS Stanford Research Systems

(408)744-9040
www.thinkSRS.com



GEOGRAPHIC DISTRIBUTIONS of the nearly 200 scholars supported in 2017 by the Institute of International Education Scholar Rescue Fund. The top host countries were the US, Jordan, Germany, the UK, and Canada. (Adapted from IIE-SRF's highlights for 2017.)

provides career and general advice, and connects people to *pro bono* services. “We serve as a matchmaker,” she says.

The top five countries of origin among scholars that SAR helps are Turkey—applications have skyrocketed since the 2016 coup—Syria, Iraq, Ethiopia, and Iran. The countries that host the most SAR scholars are Germany, the US, Belgium, Norway, and the Netherlands. “SAR has supported me emotionally, followed me, given me hope,” says Rana Mustafa, a food scientist who escaped from Syria.

“Not just humanitarian”

Giving hope was what motivated Bach-

mann to launch Chance for Science. She saw the swell of refugees in Leipzig and couldn't help but think how isolated she would feel if she were cut off from her work, she says. “I wanted to facilitate local academics easily forming contacts with refugees.” About 150 refugee academics have registered on the organization's website, and 27 presented their research at a Chance for Science conference last September. The academic environment is different in Germany than in the refugees' home countries, she says. “I got funding to hold workshops to teach them to write a better CV, about cultural differences, and how to approach fund-

ing agencies.” After finding out that just creating a website was not enough to draw people, Bachmann went around to refugee centers to introduce herself and look for scholars.

Startup Refugees in Helsinki, Finland, is another grassroots effort to welcome refugees. Accommodating a lot of immigrants is new for Finland—the roughly 30 000 are largely from Afghanistan and Iraq. Camilla Naatus, executive director of the nonprofit, says its founders “wanted to turn public opinion about refugees into something positive.” So far, she says, the organization has assembled skills profiles of 2000 refugees and helped 289 people find jobs and 44 business teams start companies. “We ask them what skills they have, what kind of work they want to do. Do they have a business idea?” The most common sectors for company startups, she says, are hospitality, media, technology, marketing, and the arts.

It's important for asylum seekers to find a stimulating environment, says the ICTP's Marsili, “whatever their skills, whatever their ambitions.” Providing opportunities for young scientists is a “weak link,” he says. “They leave their country after university, and there is a critical time to avoid losing them. People in their twenties may end up in university or working fast food—or worse.” After the ICTP saw success with a modest internship program for refugees in 2016–17, he says, “we realized we have the potential to do something meaningful.” Now, several organizations in northeastern Italy, including the ICTP,



2018 MRS® FALL MEETING & EXHIBIT

November 25–30, 2018 | Boston, Massachusetts

CALL FOR PAPERS

Fall Meeting registrations include MRS membership January – December 2019

- ▶ Broader Impact
- ▶ Biomaterials and Soft Materials
- ▶ Characterization, Mechanical Properties and Structure–Property Relationships
- ▶ Electronic, Photonic and Magnetic Materials
- ▶ Energy—Transfer, Storage and Conversion

- ▶ General Interest
- ▶ Nanomaterials
- ▶ Processing and Manufacturing
- ▶ Thermal Properties and Thermoelectric Materials

www.mrs.org/fall2018

MRS MATERIALS RESEARCH SOCIETY®
Advancing materials. Improving the quality of life.

Abstract Submission Opens
May 14, 2018
Abstract Submission Deadline
June 14, 2018

MEETING CHAIRS

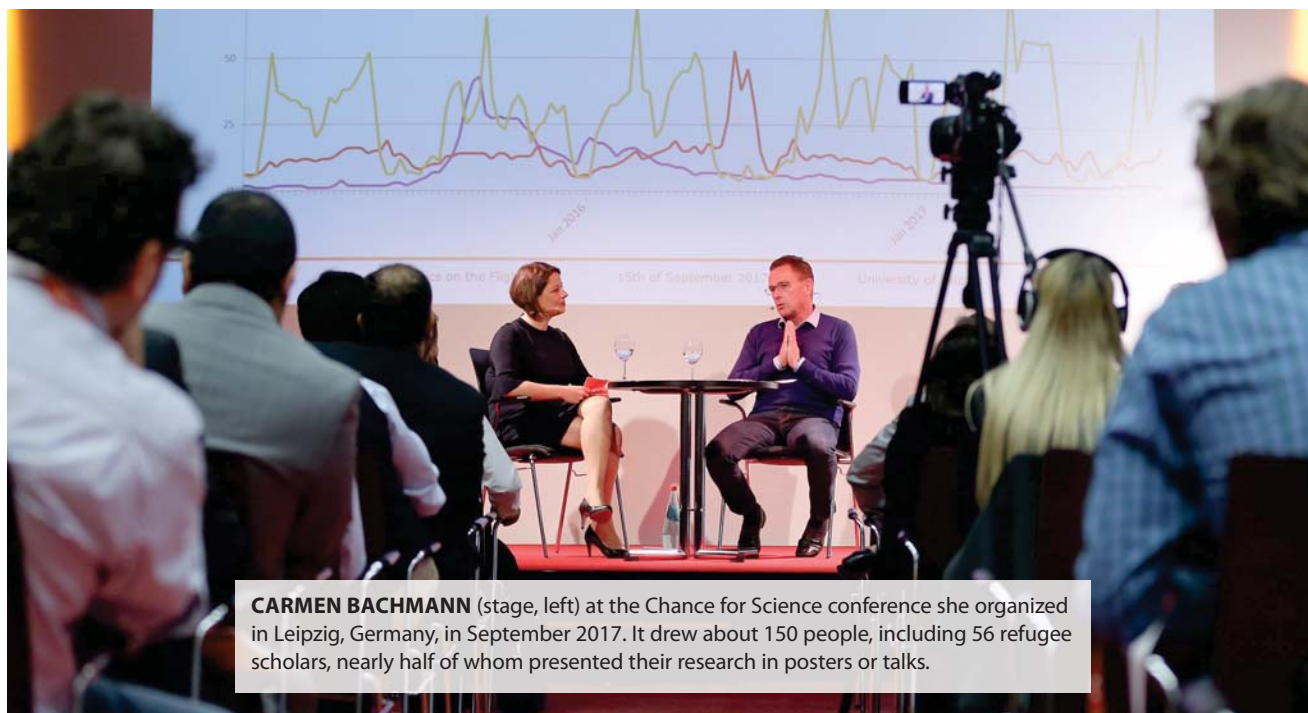
Kristen H. Brosnan
GE Global Research

David LaVan
National Institute of Standards and Technology

Patrycja Paruch
University of Geneva

Joan M. Redwing
The Pennsylvania State University

Takao Someya
University of Tokyo



CARMEN BACHMANN (stage, left) at the Chance for Science conference she organized in Leipzig, Germany, in September 2017. It drew about 150 people, including 56 refugee scholars, nearly half of whom presented their research in posters or talks.

the World Academy of Sciences, the International Centre for Genetic Engineering and Biotechnology, and regional universities, are partnering to help threatened scientists.

Other forms of assistance for refugee and threatened scholars are also popping up. In fall 2015 the European Commission launched a Web portal, Science4Refugees, to help connect refugees with job prospects and virtual mentors, among other things. To date, 217 refugee scientists have registered on the website, which lists about 600 "refugee friendly" jobs.

In 2015 the Alexander von Humboldt Foundation launched the Philipp Schwartz Initiative to support at-risk researchers in Germany. Some 124 fellowships have been awarded with an investment of €14 million (\$17 million). So far, most of them come from Turkey, Syria, Iraq, Yemen, and Venezuela. About 40% have been in natural sciences and engineering, with the rest in the social sciences and humanities. Program spokesperson Teresa Havlicek says, "We

mean to help people who can benefit our science system but who will be desperately needed in their own countries when it comes to rebuilding them in the hopefully not-too-distant future." The program "is not just humanitarian," she says. "Threatened scholars contribute a great deal to their host institutions."

Staying alive

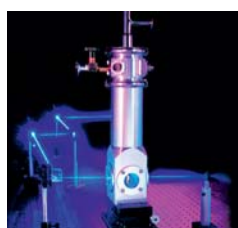
For many at-risk scholars, a job offer in another country is a lifeline. Just contacting an aid organization can be difficult, and it could be life threatening if the correspondence becomes known. When Dauqan was still in Yemen, for example, electricity was so scarce she had to charge her phone in her car so she could apply for aid. Even when a scholar has an invitation for a new post, it can be dangerous or impossible to leave the country. In such cases, says SAR's Balhara, "we try to provide assistance to them in their country."

Many threatened scientists, like Ibraheem, leave their countries illegally. He went alone to Turkey, and later sent for

his wife and children. He tried to find work there in academia, but he didn't speak Turkish well enough. He got a job picking apples, but the work lacked intellectual stimulation and remuneration—and he didn't have the muscle for it. He eventually got a fellowship through the IIE-SRF and is now at the University of Cologne. He is doing research similar to his earlier work in Egypt and Syria, but, he says, "it is more advanced here. The scientific environment is much better."

After a long hiatus from research, the fellowship offers Ibraheem an opportunity to reenter science. "For four years I spent my energy to stay alive, to keep the family safe," he says. "I had no time for geophysics." Now he is building up his CV to prepare for the next step, which he hopes will be a research position in Europe.

Mustafa left Syria in 2016 as a last resort. She had joined the faculty of Al-Baath University in 2005 after earning her PhD in food biotechnology in France. She worked with verjuice, a traditional



JANIS

sales@janis.com
www.janis.com/Cryogenics.aspx

Does your research require low temperatures? Contact Janis today. Our engineers will assist you in choosing the best system for your applications.

High Resolution AFM



- Atomic step resolution
- Low cost
- Closed loop nanopositioners
- Precalibrated position sensors
- Integrated z-axis control loop
- Automated software control

MCL
MAD CITY LABS INC.

+1 608 298-0855
sales@madcitylabs.com
www.madcitylabs.com

IS YOUR LAB RUNNING AT FULL CAPACITY?



INSTRUMENT SERVER
CONTROL HARDWARE



MEASUREMENT EDITOR
RUN EXPERIMENTS

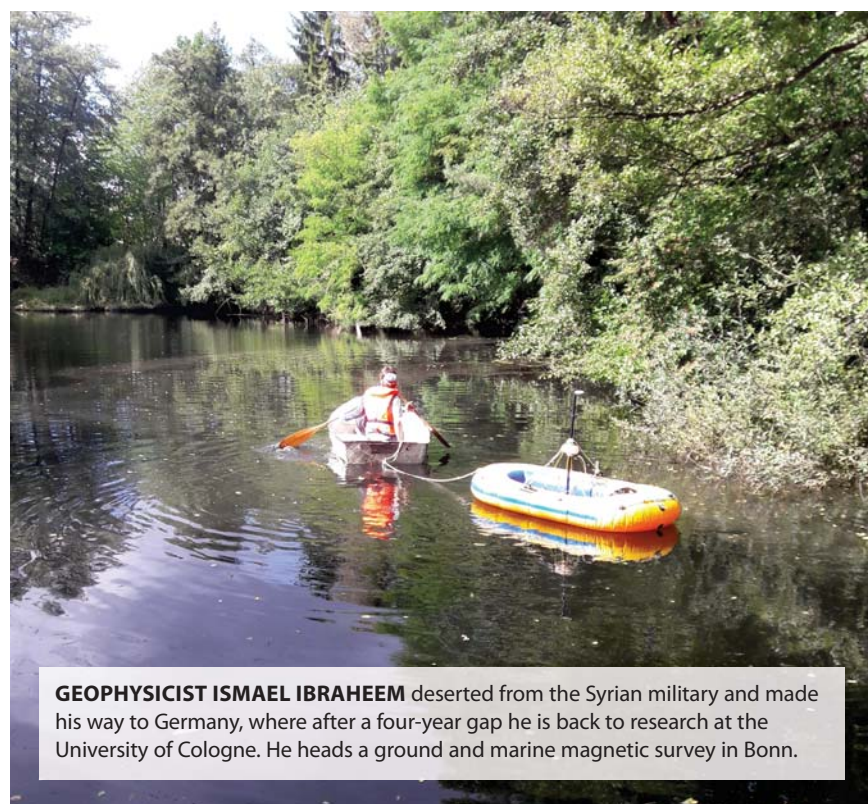


LOG BROWSER
ORGANIZE AND ANALYZE

DOWNLOAD LABBER NOW
VISIT OUR WEBSITE



Labber
www.labber.org



ISMAEL IBRAHEEM

GEOPHYSICIST ISMAEL IBRAHEEM deserted from the Syrian military and made his way to Germany, where after a four-year gap he is back to research at the University of Cologne. He heads a ground and marine magnetic survey in Bonn.

lemon juice substitute made from unripe grapes; created a chocolate-like sweet from carob; and worked on directly exporting capers for food and pharmaceutical uses.

But when the war in Syria started in 2011, Mustafa says, “the first faculty targeted was mine. My lab, my library, my office, everything was destroyed.” Although work became dangerous and demoralizing, she says, “I felt it was my duty to stay and help my country.” When government authorities refused to let her work in a safer place, “I decided to do whatever I could to go out. I said it’s my duty to save my life and the life of my kids.”

Mustafa contacted IIE-SRF and SAR and began looking for a job abroad. She didn’t tell people she was trying to leave, she says, “not even my brothers, my mother, nobody,” for fear of being discovered. She got offers in the US, France, and Canada, and she went to the University of Saskatchewan on an IIE-SRF fellowship. She left Syria secretly via Lebanon.

Difficult transitions

Fellowships abroad offer at-risk scientists immediate safety and the chance for a new professional start. But they are

temporary, and the path forward can be tough. Some threatened scientists go on to secure academic positions. Some take positions in industry or other sectors. It’s common for them to find employment for which they are overqualified. But spokespeople from SAR, IIE-SRF, and CARA all say they haven’t seen people return unwillingly to their home countries.

Mustafa’s fellowship ended in February. She knows displaced scientists who work in jobs “far from their academic achievement” and says, “I won’t accept that. I have worked hard to do food engineering.” She notes that the society in which she grew up “does not support women becoming scientists” and that her students in Syria see her as a role model.

Scholars in developing countries, and in particular in war-torn ones, face difficulties and may not be competitive with those in Western countries, acknowledges Mustafa. “But I am ambitious and a hard worker.” Scientists at her host university have trusted and mentored her as she developed her career in her new country. Without those kinds of opportunities, she says, refugee scientists like her “cannot be successful. With them, we can.”

Toni Feder