

Q&A: Tareq Abu Hamed champions environmental cooperation in the Middle East

The Palestinian director of a research institute in Israel uses dialog and science diplomacy to tackle regional challenges related to water, energy, climate adaptation, and more.

Tareq Abu Hamed is a Palestinian Israeli from East Jerusalem. He was in high school in the late 1980s, during the first Intifada. Palestinian universities were closed, and tensions between Arabs and Jews in the region were high. He decided to study abroad, in Turkey. Today, he is the executive director of the nongovernmental Arava Institute for Environmental Studies in southern Israel.

Abu Hamed earned his undergraduate and graduate degrees in chemical engineering—his bachelor's and master's degrees from Gazi University and his PhD from Ankara University. He also holds a master's degree in public policy from the Hebrew University of Jerusalem. For his PhD, he focused on using bacteria to clean oil spills. Later, as a postdoc at Israel's Weizmann Institute of Science, he worked on hydrogen fuel for transportation and then, at the University of Minnesota, on solar energy. "I became attracted to renewable energy," says Abu Hamed. "I said to myself, 'Why clean oil spills? Why not get rid of oil?'"

Since then, Abu Hamed has devoted himself to renewable energy, clean water, and other environmental issues in the Middle East. In 2008, he joined the Arava Institute, drawn by its mission to ad-



TAREQ ABU HAMED

vance cross-border environmental agreements in the face of political conflict. Founded in 1996, the institute resides on Kibbutz Ketura, with employees and students living on-site. "The kibbutz is a Jewish community," he says. "At the time, I wanted to give my wife and daughters the opportunity to experience firsthand living in a community that is not an Arab community, not a Muslim community." He has been there ever since, except for 2013–16, when he worked in Israel's Ministry of Innovation, Science, and Technology.

During his stint at the science ministry, Abu Hamed served as deputy chief scientist and then acting chief scientist. While there, he says, he established a unit of engineering research, which formed new partnerships with other countries and increased the number of scholarships for women and minorities in Israel. "Being at an organization that funds research was a great experience for me," he says. "But in the public sector

you are a public servant. You implement the agenda of the elected government. You do not have a lot of space to dream and to build your own work. I am a researcher. I am not built for the public sector. Three years was enough for me."

PT: Describe the activities of the Arava Institute.

ABU HAMED: The Arava is an academic and research institution with roughly 50 employees. Those of us in the Middle East live in a region where we share most of the natural resources. The region does not suffer from a lack of science, technology, or natural resources. No, the region suffers from a lack of trust.

Trust is the scarcest resource in the Middle East. The lack of understanding, the lack of trust, prevents us from working together to deal with the environmental challenges and the climate change challenges that the region is facing.



A WASTEWATER TREATMENT SYSTEM is installed for a pilot test at a school in a Bedouin community in southern Israel's Negev desert. Designed by Arava Institute researchers in partnership with Laguna Innovation, the system includes solar panels and treats wastewater through anaerobic digestion and biofiltration. The resulting water is suitable for irrigation.

The Arava Institute has three main activities. The first is the academic program. Students spend a semester here, and then they go back to their universities. They get credit through Ben-Gurion University of the Negev. One-third of students are international students, mainly from North America. One-third are Jewish Israelis, and one-third are Arab students—Israeli Palestinians, Palestinians from the West Bank and Gaza, Jordanians, Moroccans, Sudanese, and more. Before the war, we had 60 students. Now we have 35.

We also have research centers focused on renewable energy, transportation, sustainable water management, climate change, and political ecology. And we have the Jordan-Israel Center for Community, Environment, and Research. We do a lot of work with communities in the region. We apply the technologies and the cooperative relationships that we develop to benefit local farmers and communities.

Our third pillar is environmental diplomacy. Through projects on the ground, we try to solve environmental challenges that are stuck for many years because of the political conflict. We work with aca-

demic institutions, civil society organizations, and governments in the region.

PT: What are some examples of scientific and diplomatic projects?

ABU HAMED: We have projects on the dual use of land—using the same land for agriculture and solar energy production. We test the impact of solar panels on the performance of agriculture and on water conservation—the shade from the solar panels leads to less evaporation. We also study the impact of the plants on the performance of the photovoltaic panels because you create a kind of microclimate in which the temperature is lower.

We do a lot of work with communities on desalination and wastewater treatment. Our wastewater treatment system is modular, scalable, and runs on solar energy, without any noise or smell. And the recycled water is high quality.

We work with farmers in Gaza, the West Bank, and Bedouin communities in Israel to help them use solar energy to pump water. This helps people cope with and adapt to climate change. The lack of rain increases the salinity of the aquifer, and that increased salinity prevents

farmers from diversifying their crops. Once farmers have high-quality water, they can diversify.

We also have a project for managing water, energy, and food between Israel, Jordan, and Palestine.

PT: How is the Arava Institute funded?

ABU HAMED: Most of the funding comes from the US. We also have funding from the USAID's Middle East Regional Cooperation program and the European Union. The total annual budget is \$3 million–\$4 million. We are a small organization with a huge impact on the ground.

PT: I understand that the institute was nominated for a Nobel Peace Prize?

ABU HAMED: Yes. That was early this year. We heard from some of the nominators. It's in recognition of the environmental diplomacy work we do in the region.

PT: How is the war in Gaza affecting what you do?

ABU HAMED: The war impacts everyone in this region, physically and mentally. As a nongovernmental organization, we have a lot of challenges. But we have not lost any Arab partners since October 7. Our partners trust the Arava Institute.

Currently, we have a major project we call Jumpstarting Hope in Gaza. A coalition of civil society organizations in Palestine and Israel is working to provide people in Gaza with decentralized technologies to produce drinking water, treat wastewater, and produce electricity. We are planning to send them into Gaza in full coordination with the Israeli army.

Our partners in Gaza managed to build refugee camps, and we are trying to help convert them into sustainable camps, with prefabricated houses instead of tents. We are in the final stages of getting permits to send these systems into Gaza.

PT: Is the Arava Institute unique? Are there other scientific institutions that take the diplomacy-for-peace approach in the Middle East?

ABU HAMED: I think we are the only organization in the region that uses



THE ARAVA INSTITUTE FOR ENVIRONMENTAL STUDIES hosts Arab, Jewish Israeli, and international students from outside the Middle East in roughly equal parts.

science diplomacy with students and researchers. SESAME [the synchrotron light source in Allan, Jordan] has members from around the region. But you don't have a lot of Israeli scientists that go and stay there to build long-lasting relationships with scientists from other countries. The Malta Conferences Foundation brings scientists from the whole region together and builds long-lasting relationships.

What makes the Arava Institute unique is that we bring people together for at least a semester, and we have dialog as part of our academic program. The students and faculty talk about conflict, Israeli Independence Day, the Nakba, culture, religion, family stories. We discuss everything. When something happens in the region, the students don't go to their rooms. No, they come together to discuss what's happening.

Toni Feder PT



TENURE-TRACK FACULTY POSITIONS IN PARTICLE PHYSICS AND COSMOLOGY

The Department of Physics invites applications for several tenure-track faculty positions at the Assistant Professor level in experimental and theoretical physics. The target areas of the search are **Theoretical High Energy Physics and Cosmology**, **Non-accelerator-based Experimental Particle Physics** and **Observational Cosmology**. Applicants must possess a PhD degree in physics or a related field. The successful candidates should have a strong track record of research. Candidates with an interdisciplinary backgrounds are especially encouraged to apply. Appointments at the rank of Associate Professor or above will be considered for candidates with exceptional records of research excellence and academic leadership. In addition to pursuing a vibrant research program, appointees are expected to engage in effective teaching at the undergraduate and graduate levels.

The current faculty in the particle physics and cosmology group at The Hong Kong University of Science and Technology include Professor Andrew Cohen, Professor Tao Liu, Professor Kam-Biu Luk, Professor Kirill Prokofiev and Professor Yi Wang. The department is expanding its effort in this area by hiring additional new faculty in theory and experiment. Further information about the Department can be found at <http://physics.ust.hk>.

The starting salary will be highly competitive and commensurate with qualifications and experience. Fringe benefits including medical and dental benefits, annual leave and housing benefits will be provided where applicable. The initial appointment prior to tenure will normally be on three-year contract terms. A gratuity will be payable upon successful completion of a contract.

Application Procedure: Applicants should submit their applications along with CV, cover letter, complete publication list, research statement, teaching statement, and three reference letters.

Separate applications should be submitted online for each position below:

High Energy Theory and Cosmology (PHYS1017H):

<https://academicjobsonline.org/ajo/jobs/16291>

Particle Physics Experiment (PHYS1017P):

<https://academicjobsonline.org/ajo/jobs/16292>

Observational Cosmology (PHYS1017C):

<https://academicjobsonline.org/ajo/jobs/16293>

Screening of applications begins immediately, and will continue until the positions are filled.