NUCLEAR NEGOTIATIONS

Iran deal welcomed

Agreement good for science.

BY DAVIDE CASTELVECCHI

The agreement between six world powers and Iran over its nuclear programme is a historic step towards normalizing Iran's international relations — and has potentially profound implications for science.

"The agreement as a whole will surely have far-reaching consequences for science in Iran," says Reza Mansouri, an astronomer at the Institute for Research in Fundamental Sciences (IPM) in Tehran and a former deputy science minister of Iran.

Should the deal — signed on 14 July in Vienna — hold up, it would ease sanctions that have crippled Iran's economy in return for steps to ensure that the country's nuclear programme is used for peaceful means. "International collaborations have taken a very serious dip during the sanctions," says Shahin Rouhani, a physicist at the IPM and president of the Physics Society of Iran. Once restrictions lift, he says, travel will become easier for Iranians who are participating in conferences overseas and for foreign scientists who are visiting Iran. Labs there should find it simpler to order equipment from abroad.

The sanctions have made it difficult for Iran to participate in international collaborations such as SESAME, a synchrotron light source that is under construction in Jordan and whose members include Turkey, Pakistan, Israel and several Arab countries. Herman Winick, a physicist at Stanford University in California and a member of the SESAME Scientific Advisory Committee, says that lifted restrictions on banking activities should enable Iran to make the payments that it has pledged to the project.

As part of the deal, Iran also committed to converting one of its major sites for enriching uranium, an underground facility in Fordow, into a physics laboratory. The tunnels at Fordow could, for instance, house a particle accelerator or detectors for studying cosmic rays or neutrinos; any remaining centrifuges might be repurposed to produce isotopes for use in medical imaging. Mansouri says that it is too early to discuss concrete prospects for what physics might happen at Fordow, however.

The Vienna agreement must first survive political challenges — particularly in the US Congress — and its success will ultimately depend on international observers certifying Iran's compliance.

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British astronaut Tim Peake will board the International Space Station later this year.

Britain shifts its space strategy

UK research surrounding human spaceflight is booming.

BY ELIZABETH GIBNEY, LIVERPOOL, UK

hen Tim Peake enters the airlock of the International Space Station (ISS) in December, the former helicopter pilot will become the first astronaut to fly backed by the UK government. When, or if, other Britons will follow is unclear, but the milestone represents a wider change to the focus of UK space science.

"It does feel like an awful long time that the UK has been closed to human spaceflight," said former astronaut Helen Sharman at the UK Space Conference 2015 in Liverpool on 13–15 July. "Now the lid has well and truly been lifted, and it's clear how much interest has been just bubbling under the surface." Sharman became the first Briton in space when she flew to the Mir space station in 1991 as part of a Russian space mission with sponsorship from private companies.

Britain has long contributed to European Space Agency (ESA) programmes involving robotic probes and space telescopes, which tend to focus on astronomy and planetary science. But it is the only country of the G8 industrialized nations not to have put an astronaut on the ISS. The United Kingdom began to extend its space interests in 2012, when it pledged €20 million (US\$22 million) to the ISS and €16 million over four years for ESA's European Programme for Life and Physical Sciences (ELIPS), which does experiments on the ISS and other platforms that take advantage of the space environment, including the effects of microgravity, radiation and an extreme vacuum. An extra £49.2 million (US\$76 million) for the spacestation programme followed in 2014.

The contribution to ELIPS allows British scientists to lead the teams that compete for the programme's grants, a development that seems to have increased