Lockyer likened the neutrino/antineutrino experiment to a sort of x-ray that would essentially allow scientists and researchers to "look inside the explosion" and test theories about the origins of the universe. And in addition to expanding the frontiers of physics, Lockyer points out that there are a number of technical challenges associated with a project like this and says that "one of the side benefits is the development of other areas of science to enable these large-scale experiments." With regard to materials science, Lockyer highlighted ongoing research into the response of target materials to increasingly powerful doses of radiation. This could lead to the discovery of new materials or materials properties that could be useful in space and medical applications where radiation plays a significant role.

A second project supported under this agreement is a collaborative effort between the US Smithsonian Institution and the UK Arts and Humanities Research Council to enhance digital research at museums. While exhibitions take center stage at most museums, behind the scenes, these exhibitions are enhanced and supported by researchers and scientists. In fact, the Smithsonian's National Museum of American History, where the US-UK digital research project will be based, employs more than 200 scientists across a spectrum of research areas. The digital research project aims to improve data analysis and define best practices in using digital technologies for research. In addition, the project includes plans to deploy digital technologies at museums, which is expected to "further audience engagement" according to the UK government press release, and improve science, technology, engineering, and mathematics (STEM) education programs, according to the OSTP.

Despite the fact that the agreement is not yet publicly available and no projects aside from the two just highlighted have been announced, it is highly likely that many areas of research—including materials research—will be covered. The OSTP has listed development of MRI and PET standards, quantum technologies, and collaborations on autonomous transportation technologies as being considered under the agreement. R&D of quantum technologies, in specific, will certainly rely on the rapidly growing field of quantum materials research.

"From infrared detectors, sensors, and low noise amplifiers, to low power logic and quantum computation, there are a number of areas that the US and UK governments can benefit from technologies that utilize quantum phenomenon," says Javad Shabani, assistant professor of physics at the Center for Quantum Phenomena at New York University. Shabani also points out that collaborating with the UK on quantum materials and technologies makes sense because the UK "has a strong background in materials synthesis and coating, which has led to great success stories in the development of compound semiconductors, phase-change materials, graphene, and high-temperature superconductivity."

The full scope of the US-UK S&T agreement and its impacts on collaboration, science funding, and innovation remain to be seen, but both nations appear optimistic. The joint press release says that the cooperation on science and technology should help both nations maintain global leadership in research, which has the "potential to be world-changing."

Jennifer A. Nekuda Malik

OPEN SESAME brings training to students from the Middle East

www.opensesame-h2020.eu

Following an open call, nine students from SESAME members have been awarded training fellowships to work in European light source laboratories in 2018. OPEN SESAME is a Horizon 2020 project, which runs until the end of 2019. It provides training opportunities for the SESAME light source in Jordan. An intergovernmental organization, SESAME's members are Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, the Palestinian Authority, and Turkey. This call for fellowships was open to students working toward master's or doctoral degrees in the realm of light source science in any of these members.

Close to 50 applications were received. After scrutiny by an expert committee, nine places were offered, with six candidates in reserve. The successful applicants represent four SESAME members, with two coming from Egypt and two from Iran, four from Pakistan, and one from Turkey. Seven are women and two are men, and each will be spending a minimum of eight weeks between February and June 2018 in European laboratories. Their fields of interest are all areas that will be addressed by SESAME's phase-one beamlines, namely powder diffraction, x-ray absorption spectroscopy, infrared microspectroscopy, macromolecular crystallography, and x-ray tomography. These techniques address questions ranging from life sciences where antibiotic resistance in bacteria and the interactions of essential oils and macromolecules will be investigated by single-crystal diffraction, to geology where oil and gas flow properties in porous rock will be characterized by hard x-ray microtomography.

The laboratories hosting the fellowships are ALBA in Barcelona, which will host four students; Elettra in Trieste, which will host one; ESRF in Grenoble hosting two; and SOLEIL, near Paris, which will also host two. The Fellows each receive a stipend of €6600 to cover their costs.

OPEN SESAME is coordinated by ESRF and involves the light source laboratories ALBA, DESY, Elettra, SESAME, and SOLEIL, as well as CERN, which has a long-standing link to SESAME, the French CNRS' Ancient Materials Research Platform, Ipanema, the Cyprus Institute, the European Research Infrastructure Consortium, Instruct, and Italy's INFN. OPEN SESAME's overall objective is to support the initial training needs of SESAME and thereby help the laboratory become established as an integral part of the global light source research landscape. □