

Written evidence submitted by the Fermi National Accelerator Laboratory (Fermilab) (SDY0061)

Dear Dame Chi Onwurah and Members of the Science, Innovation and Technology Select Committee,

1. We are writing as Spokespeople of major international particle physics collaborations hosted by the Fermi National Accelerator Laboratory (Fermilab), USA, to contribute to your inquiry on Science Diplomacy. We welcome the Committee's investigation and the Government's recognition that international scientific collaboration strengthens both the UK's global influence and its international reputation.
2. Fermilab is the US's premier particle physics laboratory, with a user community of around 4,000 scientists from more than 50 countries. Its science programme directly addresses STFC's science challenges in frontier physics while also contributing to advances in areas such as artificial intelligence, quantum information science and large-scale computing. The UK has been a major partner at Fermilab for many decades, enabled by sustained investment in particle physics through UKRI and its predecessors. This long-standing engagement has positioned UK scientists in leadership roles within Fermilab's major international collaborations.
3. The UK has long been a leading contributor to large international scientific programmes, particularly in particle physics. The capabilities of UK universities, national laboratories and industry allow British scientists to lead the design and construction of major components of international research facilities, operate those facilities, and lead the analysis and publication of scientific results. These collaborations bring together scientists from across the world in partnerships that span decades, creating enduring scientific relationships and shared technological development. UK leadership within these programmes strengthens relationships with partners across Europe, North and South America, and Asia, reinforcing the UK's reputation as a trusted and constructive partner in major global scientific endeavours. For example, the Long-Baseline Neutrino Facility and DUNE experiment (LBNF/DUNE), on which the UK is the primary non-US partner, brings together scientists from 35 countries.
4. UK expertise in international scientific programmes has led British scientists to senior leadership positions at major global laboratories, including Professor Mark Thomson's appointment as Director General of CERN, Dr Nigel Lockyer's leadership of TRIUMF before serving as Director of Fermilab, and Dr Nigel Smith's leadership of SNOLAB and now TRIUMF. Through such roles, UK scientists help shape scientific programmes funded at the multi-billion-dollar scale by international partners.
5. Participation in Fermilab experiments provides exceptional training opportunities for the next generation of UK scientists. More than 50 PhD students from UK universities are currently engaged in Fermilab projects, many spending extended periods working at the laboratory through long-term attachments. These experiences provide access to unique international facilities while building professional networks that strengthen the UK's links to global research communities. A number of advanced fellows and early-career academics currently based at UK universities were trained through this pathway, having first worked on Fermilab experiments as postdoctoral researchers before returning to the UK to take up fellowships and academic positions.

6. International particle physics collaborations also deliver significant technological benefits. Research programmes at Fermilab drive advances in high-performance computing, artificial intelligence and machine learning, and increasingly intersect with emerging fields such as quantum technologies. Through participation in these programmes, UK researchers gain access to world-leading computing infrastructure and collaborate with global experts in strategically important technologies.
7. The success of the UK's partnership with Fermilab illustrates the importance of sustained, long-term investment in international scientific collaboration. UK leadership roles in these experiments are the result of decades of stable support for particle physics through STFC and its predecessor organisations. More recently, targeted funding from the Department for Science, Innovation and Technology has enabled UK participation in the LBNF/DUNE programme, further strengthening the UK-US partnership and reinforcing the UK's position as one of the leading international partners in the project. However, recent reductions in funding within the PPAN programme have already begun to affect the scale of UK participation in Fermilab experiments, particularly through reduced travel support and fewer postdoctoral research positions.
8. Maintaining the UK's leadership in global scientific collaborations will require continued support for long-term research programmes, competitive funding for PhD students and postdoctoral researchers, and policies that support the international mobility of scientific talent. In particular, the ability to attract and retain outstanding researchers from around the world, while enabling UK scientists to collaborate internationally with ease, will be essential for sustaining the UK's scientific influence.
9. Large international scientific collaborations, such as those based at Fermilab and CERN, are among the most effective mechanisms through which the UK demonstrates scientific leadership and builds long-lasting global partnerships. We therefore encourage the Committee to recognise participation in these collaborations as a strategic component of the UK's science diplomacy and international influence.

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