

Open Letter from Students on the Future of UK Fundamental Science

As students of Physics and related disciplines at universities across the UK, we write in response to the proposed reduction in grant funding within the STFC's programmes, particularly affecting physics. While the overall STFC budget may not have declined in headline terms, rising costs and inflation have significantly reduced the funding available for competitive grants, particularly in PPAN (Particle Physics, Astronomy and Nuclear Physics). We believe these reductions would undermine the goals of innovation and growth that the UK science policy seeks to advance, as well as harm the academic standing of higher education institutions in the UK.

Top-quality researchers from around the globe are drawn to the UK for its research excellence. These minds teach in our top institutions and make the UK the global powerhouse of higher education that it currently is, which attracts both domestic and international students. These top research-active academics teach students to think rigorously, creatively, and independently — skills which companies, governments, and academic institutions, in the UK and abroad, highly respect and seek in graduates.

It is the ability and flexibility to research deeply across a range of topics that attracts the best minds in the world, who go on to teach these students. While not all of their students become researchers, they become professionals in STEM-related fields. They move into technology, defence, artificial intelligence, engineering, finance, data science, government and education. These industries and sectors highly depend on individuals trained in these high-quality research environments, as they produce the analytical depth and problem-solving capabilities that make physics graduates valuable to the wider economy.

The curiosity-driven research supported by STFC plays a fundamental role in cultivating these capabilities. Unlike narrow or focussed research, foundational research encourages and requires students and early career researchers to connect ideas between disparate topics. This nurtures the intellectual flexibility that is critical in innovation, allowing unconventional ideas to be explored in novel directions. In an economy increasingly dependent on cross-sector collaboration and creative problem solving, skills gained by curiosity-driven research are not simply advantageous; they are essential. If we weaken the ecosystem that produces these skills, then the whole system is harmed.

Weakening the research base erodes the foundations that make higher education in the UK internationally attractive. Reductions in available grant funding for fundamental research, therefore, would not only affect the immediate academic community, but would carry consequences into the production of highly skilled STEM graduates that are essential to the current and future strength, growth and stability of the broader UK economy. This strength is reflected in the UK's current global academic standing.

UK universities currently rank among the best in the world. According to the QS World University Rankings, 28 out of the top 250 global universities in 2025 are British institutions (QS Quacquarelli Symonds 2026), as well as 25 of the world's top 250 institutions in Physics and Astronomy (QS Quacquarelli Symonds 2026). However, the relative share of the top-ranked universities has declined since 2015, when 34 of the top 250 institutions were UK institutions (QS Quacquarelli Symonds 2015). During the same period, other countries, such as mainland China, have increased their global prominence. By focussing on the mean ranking, we can see the overall trends clearly. From 2015 to 2025, the mean rank of the top 10 UK universities has dropped from 22.2 to 32.2, while the mean ranking of mainland Chinese universities has increased from 162.1 to 100.2.

If we look at the public research funding during this period, we can see how these changes occurred alongside national investment trajectories. In the “Double First-Class” initiative, Chinese universities saw significant investment into universities and research, which resulted in improvements to the higher educational infrastructure and overall growth to Chinese academic output (Liu, Luo and Liu 2023). The UK higher education sector, in contrast, has faced real-term funding pressure. Although funding has remained relatively flat, rising operational costs, inflation and broader financial strain have limited the growth of UK universities (PwC and Universities UK 2024).

This financial pressure is not hypothetical. A 2024 report by PwC and Universities UK finds that funding per domestic student in England is now at its lowest real-terms level in over 25 years, while operational costs have continued to grow. Around 40% of institutions surveyed reported operating in a deficit (PwC and Universities UK 2024). Beyond this, the proposed reductions in grant funding have resulted in concerns that spread beyond fundamental research, with some physics departments even fearing closure (Butterworth 2026). Hence, in a globally competitive higher education market, sustained investment in fundamental physics is essential for broad institutional stability, prestige and maintaining a comprehensive competitive advantage in research and innovation.

For students such as ourselves, considering our prospects in careers in research and high-skilled STEM sectors, this sustained funding is necessary. When deciding to pursue postgraduate study or an academic career, the stability of a country's research environment and its ambitions are essential. As highly mobile young individuals, in an increasingly international academic landscape, we naturally gravitate towards countries that demonstrate a long-term commitment to funding research. If the UK is perceived as reducing its investment in fundamental research, while other nations expand theirs, talented graduates will be forced to seek opportunities elsewhere. Not out of disloyalty, but out of necessity.

The researchers who leave today are those who would contribute to the next generation of foundational discoveries. History has taught us that what often starts as a highly abstract area of theoretical physics ends up being an essential part of whole industries and the basis of many modern technologies.

James Clerk Maxwell's unification of electricity and magnetism was initially seen as highly mathematical theoretical work, but it is now the foundation of all modern telecommunications, such as WiFi, radar, and radio, to name a few. Another example could be the discovery of electromagnetic induction by Michael Faraday. Though its scientific merits were immediately obvious, electricity at the time was a lab curiosity. Faraday's discovery led to the development of electrical generators, motors and the electrification of modern society.

We note that both examples given (of many) are by physicists working in British institutions, exploring foundational physics that resulted in applications into technologies that revolutionised the world and created numerous industries in the UK and beyond. Maintaining a sustained commitment to fundamental research is therefore essential if the UK is to remain a global leader in science, innovation and advanced industries. Such achievements are only possible within a stable and well-supported research environment, which strongly encourages collaboration and talent.

Research ecosystems and their associated networks are not easily rebuilt once weakened. If departments shrink and top international talent leave for more stable positions abroad, the UK's academic reputation, which was built over generations, will likely erode, and future industries may emerge elsewhere. Research networks would break down, and experts would disperse to other countries. Building research excellence takes decades of sustained investment, but contraction can occur within a single funding cycle.

In summary, as students, we fear that the current contraction in available grant funding would result in immediate and measurable consequences. We urge the UKRI to take immediate action to avoid such a situation, which would weaken both the quality and breadth of research undertaken at UK institutions. It would reduce the diversity of expertise to teach and supervise new students in STEM disciplines and narrow the range of advanced subjects offered. Over time, this would shrink the pool of highly skilled STEM professionals who go from research into advanced industry roles, finance, defence, technology and education in the UK. Retaining these individuals is essential for strengthening the UK's economic resilience in an increasingly competitive, international world.

Bibliography

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