

Collaborations across the globe



Geopolitical tensions are creating challenges for the international collaborations that research thrives on.

Collaboration is vital in research, allowing more complex problems to be tackled and more sophisticated technology to be created. Collaboration can also take many forms. It can involve the exchange of ideas and expertise, or the sharing of equipment and materials. And it can connect researchers from different departments and disciplines, and from different countries and continents.

One productive example can be found in the field of two-dimensional materials and the work of Takashi Taniguchi and Kenji Watanabe at the National Institute of Materials Science (NIMS) in Tsukuba. The Japanese duo supply numerous labs – in 2019, they had agreements with over 210 institutions across the globe¹ – with samples of hexagonal boron nitride, the two-dimensional insulator. The benefits of their collaborations – this time with researchers from Columbia University in the United States and Sungkyunkwan University in South Korea – can be seen again in this issue of *Nature Electronics*, where an approach to create low-resistance metal contacts to transition metal dichalcogenides encapsulated in hexagonal boron nitride is [reported](#).

In electronics, like many fields, international collaboration appears ingrained in the research process. Five of the six primary research Articles published in this issue of *Nature Electronics* involve researchers with

affiliations linked to two or more countries, for instance. And in our previous issue, all of the published Articles involved researchers with affiliations linked to two or more countries. But successful international collaborations can take time, commitment and financial support – and in certain locations around the world, currently face challenges related to geopolitical tensions.

Horizon Europe is a €95.5 billion research fund from the European Union (EU) that is accessible to member states and affiliated countries. In 2016, the UK voted to leave the EU and formally left at the end of January 2020. Access to Horizon Europe – including its European Research Council (ERC) grants – seemed assured at the time due to an agreement as part of the Brexit deal in which the UK would continue to pay into the fund.

But the situation has deteriorated since. Ongoing issues, particularly surrounding the Northern Ireland Protocol – the trading agreements between Northern Ireland, which is part of the UK, and the Republic of Ireland, which is part of the EU – mean that the agreement between the UK and Horizon Europe remains unratified. And in June this year, UK-based researchers were told their ERC grants would be cancelled unless they moved to a country in the EU². The following month, the UK government [announced](#) contingency plans if it fails to re-establish ties with Horizon Europe, which would replace lost grants, including ERC grants, with funds from the UK's research-funding agency, UK Research and Innovation (UKRI). Nevertheless, the uncertainty is likely to have long-term consequences for international collaborations in the UK – a

point that will only be exacerbated if ties to Horizon Europe are never re-established.

Elsewhere, ongoing political tensions between the US and China already appear to be having an effect on collaborations between the two countries. A recent analysis³ conducted for *Nature* showed, for instance, that the number of researchers who list affiliations in both the US and China on papers has dropped by more than 20% in the past 3 years; the number of papers with co-authors from both the US and China also fell in 2021 for the first time. The COVID-19 pandemic will be a factor here, but the trend was also attributed to political tensions, including the United States' China Initiative – a policy intended to counter economic espionage.

Collaborations between the UK and the EU, and the US and China, are a prominent feature of the work published in *Nature Electronics*. Consider, for instance, the primary research Articles we have published since launch that acknowledged funding from Horizon 2020, the forerunner to Horizon Europe that ran from 2014 to 2020. Around 30% of these involved at least one researcher affiliated to an institution in the UK. Moreover, around 15% of all the primary research Articles we have published so far have author lists with affiliations that include both the US and China. It is essential that such international collaborations continue to be maintained and cherished.

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References

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2. Woolston, C. *Nature* **608**, 833–835 (2022).
3. Van Noorden, R. *Nature* **606**, 235–236 (2022).