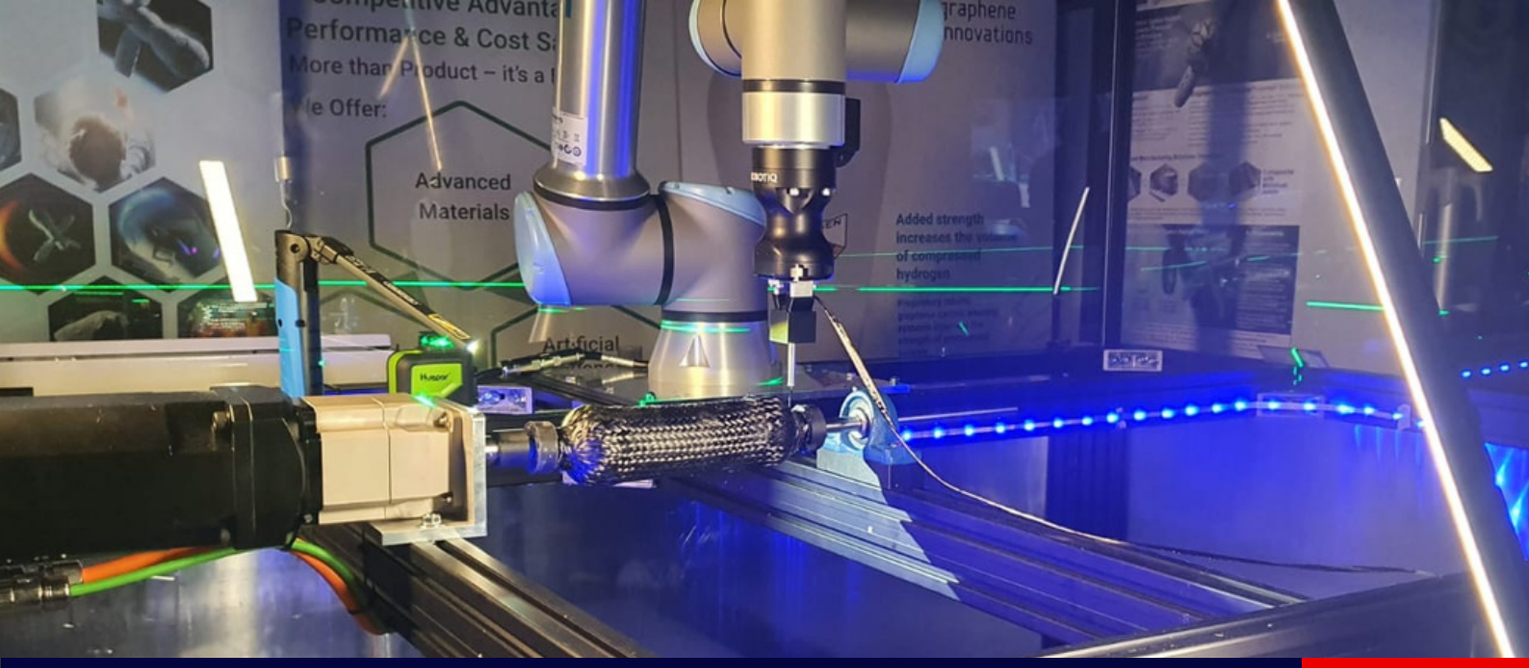

Using graphene to enhance renewable energy solutions >>>

What are the benefits of graphene for renewable energy?

Advanced materials, including two-dimensional (2D) materials such as graphene, graphene-oxide and Mxenes, can play a key role in the development of improved high-efficiency, low-cost, clean energy technologies. One of the main goals of the use of advanced materials is to leverage multi-disciplinary expertise to create new materials for clean energy generation, conversion, and storage, as well as for environmental remediation. Advanced materials can also be beneficial for the efficient clean-up of different contaminants from water, wastewater, air, and soil.

UK expertise in advanced materials

In 2021, the UK Government unveiled its Innovation Strategy and planned to ensure the UK's world-leading science and ideas turn into solutions for the public good, including tackling the climate emergency and delivering the UK's net zero targets. Advanced Materials is identified as one of the Strategy's seven "tech families." The UK has a world-leading advanced materials science base. Materials are being manipulated at an atomic level to elicit new properties and vastly improved performance. The 2010 Nobel prize was awarded to scientists at the University of Manchester for advances in Graphene, an ultra-thin, ultra-strong material.

UK organisations with graphene expertise for the Middle East

Graphene@Manchester

The University of Manchester is the home of graphene, where the one-atom-thick material was first isolated. The institution has three world-leading advanced materials facilities, including the researcher-led National Graphene Institute (NGI), the Henry Royce Institute (the UK national centre for research and innovation in advanced materials), and the business-facing Graphene Engineering Innovation Centre (GEIC). GEIC helps companies develop and launch new technologies, products and processes that exploit the remarkable properties of graphene and other 2D materials. The centre was part funded by Masdar and the UK Government, a great example of UK-UAE collaboration in science and innovation.

Graphene@Manchester is now partnering with Khalifa University in the UAE on a range of projects to accelerate the commercialisation of advanced graphene and 2D material products and applications, including by acting as an enabler of renewable energy solutions. Graphene has multiple applications, including reducing the weight of materials and can be used in water desalination, wind turbine blades, battery technology, and hydrogen storage vessels, amongst many more, in support of the drive towards net zero.

Learn more about UK renewable energy solutions for your business.

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