Graphene at the forefront of a sports footwear revolution

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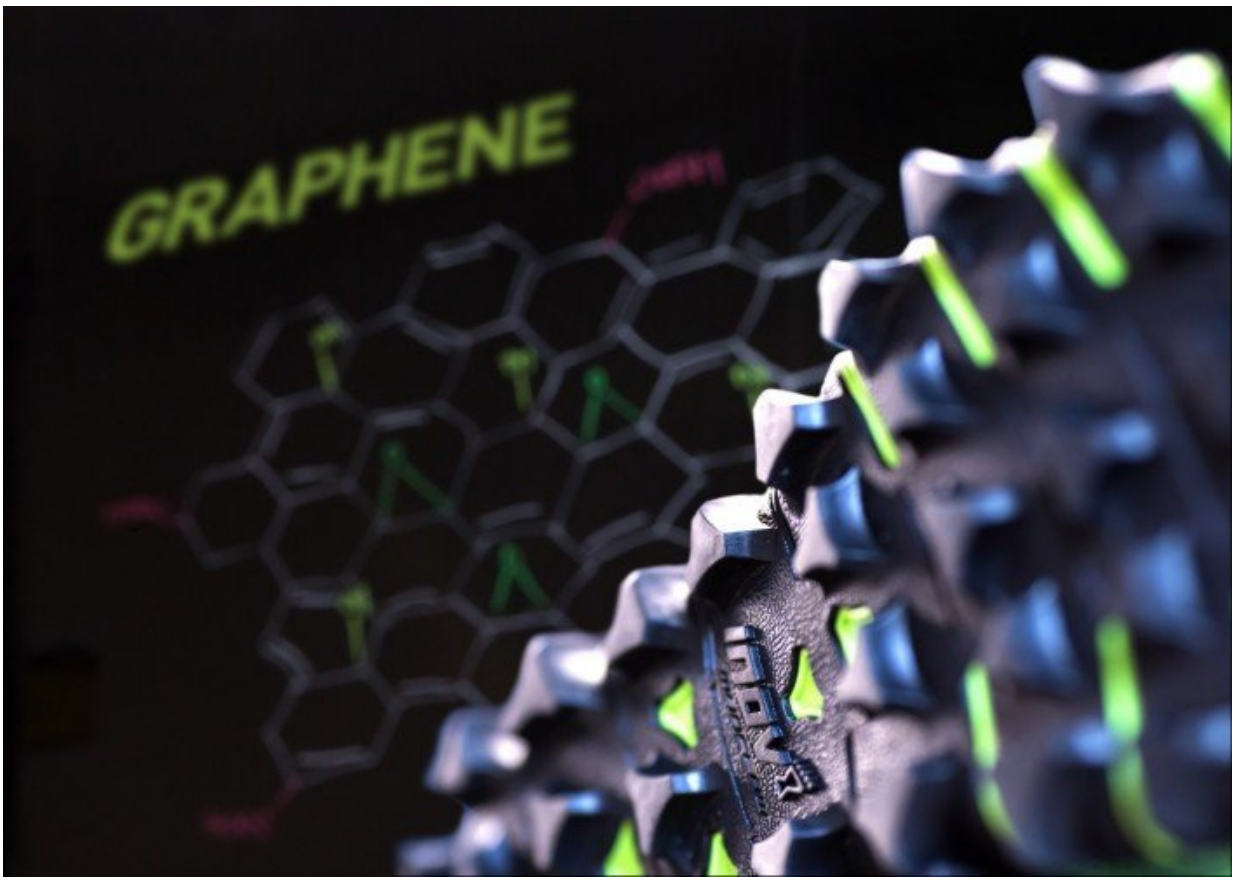

Credit: University of Manchester

A University of Manchester partnership is launching a revolutionary world-first in the sports footwear market following a unique

collaboration with graphene experts.

British sportswear brand inov-8 has teamed up with The University of Manchester to become the first-ever company to incorporate graphene into running and fitness shoes.

Laboratory tests have shown that the rubber outsoles of these shoes, new to market in 2018, are stronger, more stretchy and more resistant to wear.

Graphene is the thinnest material on earth and is 200 times stronger than steel. First isolated at The University of Manchester in 2004, it's the world's first two-dimensional material at just one-atom thick and has the potential to revolutionise many areas of technology.

Michael Price, inov-8 Product and Marketing Director, said: "Off-road runners and fitness athletes live at the sporting extreme and need the stickiest outsole grip possible to optimize their performance, be that when running on wet trails or working out in sweaty gyms. For too long, they have had to compromise this need for grip with the knowledge that such rubber wears down quickly.

"Now, utilising the groundbreaking properties of graphene, there is no compromise. The new rubber we have developed with the National Graphene Institute at The University of Manchester allows us to smash the limits of grip.

"Our lightweight G-Series shoes deliver a combination of traction, stretch and durability never seen before in sports footwear. 2018 will be the year of the world's toughest grip."

Graphene is produced from graphite, which was first mined in the Lake District fells of Northern England over 450 years ago. inov-8 too was

forged in the same fells, albeit much more recently, in 2003. The brand now trades in 68 countries worldwide.

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Commenting on the collaboration and the patent-pending technology, inov-8 CEO Ian Bailey said: "Product innovation is the number-one priority for our brand. It's the only way we can compete against the major sports brands. The pioneering collaboration between inov-8 and the The University of Manchester puts us – and Britain – at the forefront of a graphene sports footwear revolution.

"And this is just the start, as the potential of graphene really is limitless. We are so excited to see where this journey will take us."

The scientists who first isolated graphene were awarded the Nobel Prize for physics in 2010. Building on their revolutionary work, the team at The University of Manchester has pioneered projects into graphene-enhanced sports cars, medical devices and aeroplanes. Now the University can add sports footwear to its list of world-firsts.

Dr Aravind Vijayaraghavan, Reader in Nanomaterials at The University of Manchester, said: "Despite being the thinnest material in the world, graphene is also the strongest, and is 200 times stronger than steel. It's also extraordinarily flexible, and can be bent, twisted, folded and stretched without incurring any damage.

"When added to the rubber used in inov-8's G-Series shoes, graphene imparts all its properties, including its strength. Our unique formulation makes these outsoles 50% stronger, 50% more stretchy and 50% more resistant to wear than the corresponding industry standard rubber without graphene."

"The graphene-enhanced rubber can flex and grip to all surfaces more effectively, without wearing down quickly, providing reliably strong, long-lasting grip.

"This is a revolutionary consumer product that will have a huge impact on the sports footwear market."

The initial collaboration, part-funded through the EPSRC Impact Acceleration Account, has already delivered sector leading innovation for inov-8. the continued partnership, supported by the Innovate UK KTP programme, aims to transform the sports footwear sector through future inov-8 innovation

Through schemes such as the EPSRC Impact Acceleration Account and the Knowledge Transfer Partnership, industries of all sizes are able to access world class expertise and facilities such as the National Graphene Institute.

Provided by University of Manchester

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