



**4<sup>th</sup> September 2018**

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## **New Graphene Business Bounces out of The University of Manchester**

Grafine Ltd is a new business created to develop innovative high-performance rubbers, elastomers and other such soft materials enhanced with graphene - the extraordinary 2-dimensional material first produced in Manchester.

The business was founded by two University of Manchester academics, Dr Maria Iliut and Dr Aravind Vijayaraghavan. Both founders are world experts in graphene, and its use in making rubbers and elastomers stronger and more durable.

Grafine Ltd will be based at The University of Manchester's Innovation Centre on Grafton Street and will use the University's world-class facilities including the brand-new Graphene Engineering Innovation Centre (GEIC) for its product development work.

Grafine is offering a range of technical development services to manufacturing companies from around the world who wish to profit from the performance benefits that graphene can add to their products.

Elastomers and rubbers are used world over in products such as tyres, shoes, gloves, industrial components, construction materials, coatings and medical devices. The global market size for rubber and elastomer products is forecast to be more than £70 billion by 2021.

Grafine Ltd is looking to exploit the potential of this massive global market and has already excited interest from global manufacturers of elastomer and rubber products. Grafine is currently negotiating development contracts with such companies.

Dr. Vijayaraghavan, who has been at the forefront of research into graphene for more than a decade, said:

"We are very excited to launch Grafine Ltd because we have the specialist skills and know-how to help global manufacturing companies use new 2-dimensional materials like graphene effectively and cheaply."

He continued: "Businesses in many sectors are continually striving to improve the properties of elastomeric compounds in order to enhance product performance in both existing and new applications. Graphene can further enhance the already excellent properties of rubber and elastomers by improving their strength, elasticity, flexibility, thermal stability, resistance to chemicals and durability. With the support of Grafine Ltd, manufacturing companies will be able to give product designers even greater flexibility when they create new products.

"By working with Grafine Ltd, manufacturers will be able to accelerate the speed with which they can bring these new elastomer composites to market while reducing risk and lowering cost".

Dr. Iliut, the academic co-founder and Chief Technical Officer of Grafine, added: "

"Our business, Grafine Ltd, offers a range of consultancy services to companies wishing to exploit the benefits that these nano-materials can bring to their elastomeric products and coatings. Grafine will also sign commercial deals to license its know-how and patents allowing knowledge and technology transfer to its industrial customers."



The University's wholly owned subsidiary, Graphene Enabled Systems Ltd, has supported the academic founders and, with assistance from UMI3 Ltd (the University's IP commercialisation company), created Grafine Ltd.

Its CEO, Andrew Wilkinson, who represents the University on the Grafine Ltd board, is very optimistic about Grafine's future. "Grafine offers manufacturers the skills and know-how in graphene-enhanced elastomer and rubber composites and coatings that would take them decades to develop in-house. As the company builds its customer base and grows we predict it will have a major impact on the use of 2-dimensional materials in the global rubber and elastomer market."

**Ends – 534 words**

## **BACKGROUND**

### ***Dr. Maria Iliut - Academic founder - Chief Technology Officer***

*Expert in graphene and 2-dimensional materials and applications, particularly composites.  
Post-doctoral research associate at University of Manchester (2014 – 2018)  
PhD (2013) from Babeş-Bolyai University, Romania.  
Published over 20 papers in international peer reviewed journals.*

### ***Dr. Aravind Vijayaraghavan - Academic founder - Scientific advisor and consultant***

*Leader of the Nanofunctional Materials Group at the National Graphene Institute.  
Research in graphene and 2-dimensional materials, particularly composites and sensors.  
Senior post-doctoral research associate at MIT, USA  
PhD (2006) from Rensselaer Polytechnic Institute, USA  
Published over 80 papers in international peer reviewed journals.*

### ***Andrew Wilkinson – Director of Grafine Ltd representing The University of Manchester.***

*CEO of Graphene Enabled Systems Ltd.  
Previously Managing director at power-equipment manufacturer Socomec SAS  
14 years with ICI plc's Imagedata business, 8 of these as Global VP of Sales and Marketing.  
Successfully brought to market a host of new technologies such as 3-dimensional industrial decoration system, high-performance thermally stabilised films for electronics industry and digital imaging consumables and hardware.*

### ***Dr. Shanshan Huo - Composite engineer supporting Grafine Ltd***

*Expert in the development and applications of nanocomposites.  
Senior development engineer at NetComposites (2014 – 2017)  
Post-doctoral research associate at Canadian Light Source, Canada (2013 – 2014)  
PhD (2012) from North Dakota State University, USA.*



**GRAFINE LTD** - Grafine Ltd is a new spin-out business from The University of Manchester in the UK, created to provide scientific and technical consultancy services to the multi-billion pound global elastomer industry. Grafine will focus on the development of hybrid elastomer formulations which use graphene and other nanomaterials to significantly improve product performance. The majority of elastomer businesses do not have the necessary skill set or know-how to use these nanomaterials in their development or manufacturing processes.

Sales revenues will be from project income and from recurring licensing royalties. The business will maintain close links with The University of Manchester: "the home of graphene". One of the academic founders will continue to lead the University's Nanofunctional Materials Research Group and provide scientific consultancy to Grafine on an ongoing basis. Grafine will use the University of Manchester's world-class facilities. The University will have an equity stake in Grafine.

In addition to ongoing in-house material and IP development, a number of commercial partnerships with small and large companies for joint development activities are under negotiation.

[www.gra-fine.com](http://www.gra-fine.com)

**GRAPHENE ENABLED SYSTEMS** – is a wholly owned subsidiary of The University of Manchester. Its mission is to create a cluster of successful 'spin-out' businesses or joint-venture businesses close to the University. Prior to the creation of the spin-outs, Graphene Enabled will identify markets and applications in which graphene or other 2D materials can enhance product performance and create competitive advantage. Graphene Enabled also works with industrial partners that have a complementary technology or access to domestic and international markets.

Having identified an opportunity capable of generating a spin-out or joint-venture business, Graphene Enabled will build a high-quality product demonstrator supported by a robust business plan. Graphene Enabled works with sources of investment capital to provide early stage seed funding for the spin-out or joint ventures. The University of Manchester takes an equity stake in all of the spin-outs and joint ventures.

Graphene Enabled welcomes discussions with potential investors or industrial partners from across the world to explore areas of collaboration

[www.graphene-enabled.com](http://www.graphene-enabled.com)

**UMI<sup>3</sup>** - The University of Manchester Intellectual Property is a division of The University of Manchester I<sup>3</sup> Ltd ([www.umi3.com](http://www.umi3.com)) which is The University of Manchester's agent for intellectual property commercialisation.

UMI<sup>3</sup> is wholly owned by The University of Manchester which has over a 30 year history of IP commercialisation. UMIP's role is to bring as much of the University's ground-breaking inventions and software, as is relevant, into the commercial world. This we do principally by attracting entrepreneurs, investors and corporate venture partners to our campus and Innovation Centre



*(www.umic.co.uk) and then, through engagement with our academic colleagues, licensing or spinning out companies.*