

Emberion Oy, Helsinki 06.07.2016

## **NEW HIGH TECHNOLOGY COMPANY ESTABLISHED BASED ON LEADING EDGE RESEARCH**

### **Emberion Oy will revolutionise X-ray, infrared and thermal imaging markets**

A new high technology company, Emberion Oy, has been established by a leading edge research team formerly employed by Nokia. Emberion Oy will revolutionise X-ray, infrared and thermal imaging markets with its novel camera sensors that will significantly improve the performance and cost competitiveness of existing commercial devices. Emberion's technologies are based on a novel carbon nanomaterial, graphene, whose unique optical and electrical properties enable a quantum leap in the performance of thermal cameras and X-ray detectors and create new applications for these technologies.

Under an agreement between Emberion Oy and Nokia, photodetector technologies developed by the team have been acquired by the new company. Emberion Oy has recruited key people from the former research team to continue the commercialisation of products. Funding from the private equity funds of VersoVentures Oy makes it possible for Emberion to continue the development of its leading edge products. The first prototypes of Emberion's key products are planned to be delivered to customers during the autumn.

Tapani Ryhänen, managing director of Emberion Oy, says: "Having VersoVentures as a lead investor means we can move our technology seamlessly from leading edge research to a new growth company. Our team has been an integral part of the European graphene research effort for nearly ten years, and we are an excellent example of how these technologies have matured for commercial applications. Our world class technology teams in Cambridge, UK and in Espoo, Finland are excited about this opportunity to bring our disruptive technologies to real applications and for the benefit of people around the world. Our customers, all leading companies in their fields, are very interested in our products."

Emberion Oy is headquartered in Espoo, Finland and the company has a subsidiary in Cambridge, UK, one of the world's leading centres for graphene research.

Anssi Kariola, managing partner of VersoVentures, says: "We are very convinced of the knowhow of the team and its results that create a basis for a new global success story. Our intention together with the Emberion team is to disrupt the X-ray, infrared and thermal imaging markets where a relatively small number of technology providers exist. Emberion has an opportunity to change significantly the balance of its target markets by providing better and more competitive solutions for its customers. VersoVentures was established because many companies have a lot of technologies and businesses that for some reason cannot optimally flourish inside a bigger enterprise. By spinning off this kind of businesses as independent growth companies we can provide necessary resources and the focus for their optimal business development. The technologies that Emberion's researchers have developed over several years are a good example of this. We believe Emberion will be a true

European success story - a high growth, high technology company built by a truly unique team on a global scale, bringing together leading knowledge from several countries in a single team.”

VersoVentures is a Finnish private equity company that specializes in investing in businesses with significant growth potential spun off from larger companies, and in other leading technology growth companies in their fields, helping them to build new global growth companies.

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About graphene:

Graphene is a two-dimensional atomic crystal made up of carbon atoms arranged in a hexagonal lattice. Graphene can be thought of as a giant two-dimensional molecule. Graphene is only one atom layer thick, over 100 times stronger than steel and is an extremely light and flexible material. It is also an excellent electrical and thermal conductor. The electron mobility in graphene is over 100 larger than in silicon. Graphene is nearly transparent but absorbs a significant amount of energy from light being only one atom layer thick.

Due to its unique combination of superior electrical, optical and mechanical properties, graphene is a credible starting point for new disruptive technologies across a wide range of fields: such as, electronics, medicine, aerospace, automotives, energy storage, water desalination, coatings and paints, solar technologies, oil and communications. In addition, the industrial manufacturing of graphene materials is cost efficient comparing to many other materials used in the electronics industry. The applications of graphene technologies in optics and electronics are progressing fast: high performance photodetectors have been realized by several research teams, and graphene technologies can be combined with traditional integrated circuits.

Professors Andre Geim and Kostya Novoselov succeeded for the first time to isolate graphene from graphite crystal and to verify this two-dimensional material at the University of Manchester in 2004. They received the Nobel Prize in Physics in 2010 in recognition of their breakthrough. After a two-year long preparation period the EU Commission selected graphene technologies as one of the European Flagship research projects in 2013. Today the EU FET Graphene Flagship project has over 150 participating European research institutes or companies. Nokia Research Center was one of the founders of the Graphene Flagship, and Emberion’s managing director Tapani Ryhänen is a member of the Strategic Advisory Council of the Flagship.