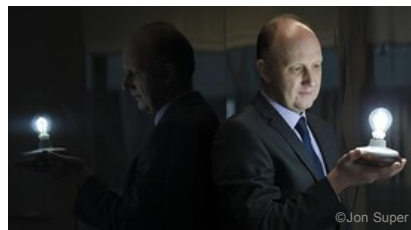


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# Lightbulb moment as first mass-market graphene product goes live

Andrew Bounds, Enterprise Editor

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The first mass market product made with the “miracle material” graphene is about to go on sale: a lightbulb.

The invention is a dimmable LED lightbulb that can cut energy costs by at least 10 per cent and last for several years. Its developers at Manchester University say it is within months of going on sale.

The bulb copies the classic design of the inventor Thomas Edison, but its filament has a coating of graphene, an atom-thick layer of carbon that is stronger than steel and conducts heat and electricity efficiently.

Current dimmable LED bulbs cost £15 or more, but the price of the new bulb will be lower.

Its maker, Graphene Lighting, is a spin-off company from Manchester University and an unnamed commercial partner. Prof Colin Bailey, a director, said: “People are amazed at just how quickly we have managed to take it to market. Sometimes it takes 20 years to get a new discovery out there.”

Graphene was first isolated at the university in 2004. Sir Andre Geim and Sir Kostya Novoselov won the Nobel Prize for their work.

Prof Bailey said the business, backed by Canadian investors after a fundraising by Industrial Alliance, a financial group in Quebec, was proof that the UK could make money from graphene. Graphene Lighting was likely to be floated on the Canadian stock market, he added.

George Osborne, the UK chancellor, opened the £61m National Graphene Institute in Manchester last week. The government put £38m towards the centre, which unites 200 researchers and 35 companies.

Prof Bailey, a deputy vice-chancellor of the university, said that without the NGI it would have been “game over” in the race to commercialise graphene. China and South Korea have put millions of dollars into finding practical applications for the material.

“Who is winning the race? Manchester isn’t doing too badly,” he said. “I wish we could move faster. If we didn’t have the NGI, it would not be happening here, it would be happening overseas.”

The government’s investment attracted a further £120m from abroad, including EU money, towards the centre, Prof Bailey added.

It is still difficult to manufacture graphene in large quantities though a number of companies are trying. One is working on false teeth mounted on a graphene-coated bridge. The tennis equipment maker Head has integrated it in a carbon fibre racket.

Possible uses for the material are to make lighter aircraft, flexible display screens and lighter batteries. However, Sir Kostya said that niche applications were needed to prove its uses first. “It is very hard to bring a new material to market.

“I am not sure that big companies are up for big changes altogether. We have had to learn the hard way. You cannot rely on big companies to take it over and bring it to the world.”

The investment was often not worth the return for a dominant business, he added. “Unfortunately the rules of the game are not set by the rules of scientific knowledge but by the rules of economics and development which work on perception, and where money goes is not always where the best technology is. The best technology does not always win.”

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