

# News story: Futuristic super-thin metal could create 'solar-panel shirts'

Work on new super-thin materials could mean front line troops have solar panel shirts and data storage in their combats.

Nicola Townsend is researching the properties of new super-thin materials for a PhD at the University of Exeter with Prof Saverio Russo and Prof Monica Craciun, funded by the Defence Science and Technology Laboratory (Dstl). This work was carried out with Dr Iddo Amit, a Research Fellow funded through the European Commission Marie Curie Actions.

Originally, Nicola was trying to find magnetic field sensors, but started looking at a layer-structured semiconductor, that can be thinned down to thickness of a few atoms, making it truly two-dimensional.

The material, molybdenum di-telluride, is part of an exciting family of electronic materials that are promising to revolutionise the industry. Since the discovery of graphene, there's been a push to discover new 2D materials. Most electronic gadgets are based on silicon, which is widely available – it can even be made from sand on the beach! While silicon is very common, there are things – wearable electronics, smart textiles – where silicon, due to its structure, cannot be used. The exciting new family of 2D materials offer transparency and flexibility, making them ideal for wearable tech.

The project was modified to look at the problems with implementing the new materials into our everyday devices – and Nicola discovered that the problems could offer new solutions. Minute imperfections hinder the motion of charges in the material, requiring higher energy to operate them. Surprisingly, the same imperfections can also be utilised for advanced applications, like infrared photo-detectors or memory devices.

Real-world applications for this novel technology include flexible solar panels – on backpacks or integrated into clothes, which wouldn't add any weight. There is also potential for infrared sensing as part of cameras, which can allow their use in smoke or harsh weather conditions, or to sense organic chemical signatures in real time on packaging. There are also potential uses in communications, or for having data storage in your shirt.

Nicola said:

Graphene was only successfully isolated and measured 14 years ago, and by this sparked global interest in 2D materials. We're only now starting to scratch the surface by looking into finding and exploiting these new materials. We're working our way to mass production, but we can already see that this area has a huge

potential.

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## **Notice: NG22 0PG, Mr Robert Clough and Mr John Clough: environmental permit issued**

The Environment Agency publish permits that they issue under the Industrial Emissions Directive (IED).

This decision includes the permit and decision document for:

- Operator name: Mr Robert Clough and Mr John Clough
  - Installation name: Far Leys Poultry Unit
  - Permit number: EPR/RP3436DP/A001
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## **News story: Government introduces new Offensive Weapons Bill to tackle serious violence**

The [Offensive Weapons Bill](#) will make it harder for young people to buy knives and acid online with sellers requiring rigorous age verification to prove those purchasing knives or corrosives are over 18. Failure to do so will leave them liable for prosecution.

The Bill will also ban possession of weapons such as zombie knives, knuckle dusters and death stars both in public and private. Those who do will be forced to hand them in.

As part of the new legislation the Home Secretary, Sajid Javid, has been clear in his support to police officers, with measures in the Bill ensuring that the police have the powers to seize illegal weapons whenever they are found.

Home Secretary Sajid Javid said:

It is totally wrong that young people are able to get their hands

on dangerous weapons such as knives and harmful acids.

That is why we are making the laws around this even tighter.

Earlier this week I saw the great work our front line officers do to keep our communities safe – and I am determined to do everything I can to help them keep weapons off our streets.

The Bill forms part of the government's response to the recent rise in serious violence, set out in the £40 million Serious Violence Strategy, which places a new focus on early intervention alongside robust law enforcement.

As such, existing offences of possessing a bladed article or offensive weapon on school premises has been extended to cover further education premises in England, Wales and Northern Ireland.

The full measures of the Offensive Weapons Bill are:

- the Bill creates a new criminal offence of selling – both online and offline – a corrosive product to a person under the age of 18. The substances and concentration levels of what constitutes a corrosive product are set out in the Bill
- it creates a new criminal offence of possessing a corrosive substance in a public place. There is a defence of possessing the corrosive substance for good reason. There is a minimum custodial sentence in England and Wales where a person is convicted for a relevant offence a second time
- where a corrosive product or bladed product is sold online, the defence of having taken reasonable precautions can only be relied on where the seller meets certain conditions in terms of age verification and packaging and delivery of the items
- it creates new criminal offences prohibiting the dispatch of bladed products and corrosive products sold online to a residential address. The offence for bladed products is limited to those that can cause serious injury and includes defences for made to order items and those for sporting and re-enactment purposes
- it creates new criminal offences on delivery companies of delivering a bladed article or a corrosive product on behalf of a seller outside the United Kingdom to a person under 18
- it updates the definition of a flick knife and prohibits the possession of flick knives and gravity knives (their sale etc is already prohibited)
- it amends existing law to make it a criminal offence to possess certain weapons (such as knuckledusters and death stars) – the sale and importation of these is already prohibited. It provides for compensation of owners
- it extends the existing offences of possessing a bladed article or offensive weapon on school premises to cover further education premises in England and Wales and Northern Ireland
- it amends the legal test for threatening with an offensive weapon in England and Wales to aid prosecution;
- it prohibits high energy and rapid firing rifles and a device known as a

“bump stock” which increases the rate of fire of rifles and provides for compensation of owners.

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## **Press release: Launch of Great British High Street competition 2018**

- The Great British High Street awards are back and bigger and better than ever
- Winners will receive a share of £25,000 and dedicated support and mentoring from industry experts
- High streets in Northern Ireland to battle it out to be the United Kingdom’s best for the first time

Communities across the UK are being urged to back their local high streets by entering them into the Great British High Street Awards 2018.

The awards, run by the Ministry of Housing, Communities and Local Government, and sponsored by Visa, recognise and celebrate local achievements on our high streets, supporting the communities they serve.

The Great British High Street awards will not only celebrate the best high streets across the nation, but will also champion ‘Rising Stars’ – the most ambitious high streets which are taking a lead and working together to revive, adapt and diversify.

By shining a light on great examples of how high streets can meet the challenges of changing consumer behaviour and a changing retail environment, the awards will provide all communities with top tips for success.

Speaking ahead of the competition launch on Lower Marsh, Waterloo, a former finalist, Communities Secretary Rt Hon James Brokenshire MP said:

The Great British High Street Awards acknowledge how vital high streets are to our nation. They are crucial in creating jobs, nurturing small businesses and driving local and regional economies. We want to celebrate the best examples of high streets, as well as those individual businessmen and women playing a leading role.

The government is committed to ensuring high streets continue to thrive and I’m delighted to support this brilliant competition.

The awards, first held in 2014, have been simplified for 2018 with winning high streets to be named in England, Scotland, Wales and for the first time,

Northern Ireland – across 2 categories: Champion High Street and Rising Star High Street.

High Streets Minister Jake Berry MP said:

The Great British High Streets competition this year will celebrate the creativity of the many businesses in the UK which are providing the shops and services so vital to our economy.

The previous awards were hugely successful, proving the Great British public really cares about the centres of their cities, towns and villages. I'd urge everyone to get involved in this important competition.

The 26 shortlisted entries in the Champion High Street category and 12 Rising Stars will be announced in October. They will then go through to a public vote and be visited by a judging panel made up of industry leaders from across retail, property and business.

Britain's best high street will be announced in November, with the winner receiving a £10,000 cash prize for a local community project. Winners from each of the remaining nations will receive a £5,000 contribution to a street party or community project.

The competition was last held in 2016. Blackburn in Lancashire was crowned the Great British High Street overall winner that year thanks to the determination of the community and local businesses who worked together to overcome the challenges their high street was facing.

The government is committed to helping local business communities and has introduced over £9 billion worth of business rate support so that many small businesses now pay no rates. This sits alongside a reduction in annual rises, worth a further £4 billion, and helping shops and restaurants across the country.

Through the [Future High Streets Forum](#), the government is also working closely with retail leaders and industry experts to support high streets and town centres to adapt and compete in the face of changing consumer and social trends.

Nominations for the Great British High Street Awards are now open. To find out more, visit [Great British High Street](#) and follow on social media #myhighstreet.

The deadline for entries is 15 August 2018

There will be 26 short-listed entries in the Champion High Street category, 13 for England, 6 for Scotland, 4 for Wales and 3 for Northern Ireland. There will be 12 short-listed entries for the Rising Star category.

High Streets are changing, and the government is committed to helping communities adapt. By delivering on our commitment to give councils more control over the business rates they raise locally, they have never had a better reason to support their shops and restaurants.

We have introduced over £9 billion worth of business rate support so that many small businesses now pay no rates and we are reducing annual rises which is worth a further £4 billion, helping shops and restaurants across the country.

In 2017, we launched a £300 million discretionary relief scheme over the next 4 years, which local authorities can use to grant relief to businesses.

With our Future High Streets Forum, we are working closely with retail leaders and industry experts so we can develop new solutions to the current challenges we are facing

We are reviewing the wider taxation of the digital economy, including ensuring international corporate tax rules deliver fair results across different businesses and that sellers operating through online marketplaces pay the right amount of VAT.

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## [News story: UK government ratifies Lanzarote Convention to tackle child sexual exploitation](#)

The UK's compliance with the Lanzarote Convention and this ratification will ensure that we are taking robust action with 43 countries to help rid the globe of the scourge of sexual violence and child abuse through greater information sharing and international cooperation.

The Minister for Crime Safeguarding and Vulnerability, Victoria Atkins said:

Our ratification of the Lanzarote Convention sends a clear message that this government is determined to play its part in ending the abuse of children not only in the UK but around the globe.

This government's record for tackling child sexual exploitation is very strong, but it is a sickening fact that there are children being abused every day by predatory individuals and this is why working with our international partners to prevent further suffering is so vital.

Tink Palmer MBE, chief executive of the Marie Collins Foundation, said:

Since the Marie Collins Foundation was founded 6 years ago to meet the recovery needs of children sexually abused and exploited online, the problem of online sexual abuse of children has grown exponentially.

We are working closely with Home Office on issues connected with internet related crimes and have appreciated the support given to us in order to ensure that children and their families are able to recover and live safe and fulfilling lives.

We welcome the government's ratification of the Lanzarote Convention as we seek to have a unified approach to the protection of all children wherever they may live.

The Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse, known as the Lanzarote Convention, is part of the United Nations and Council of Europe standards to end all kinds of sexual offences against children, including exploitation of children through prostitution, grooming and offences related to child abuse material.

The government is also providing significantly increased resources to the National Crime Agency to tackle child sexual exploitation in the UK. This has led to a near doubling of its investigative capacity and we have committed an additional £20 million over the spending review period to maintain this capability.

The Marie Collins Foundation supports children, young people and families recovering from sexual abuse. They also work with social workers, schools and organisations such as the police to provide training to ensure the right help is given to those in need.