

Press Release

A world premiere exhibition combines science and arts to explore graphene and the wonders of 2D materials during Manchester's tenure as European City of Science



From clockwise: CREDIT: Angela Moore; Scientists at the National Graphene Institute in Manchester push the boundaries of graphene. CREDIT: David Shaw; Gamini Ajantha Bandara, Mining Operations Manager at Global Graphene Industries, Sri Lanka. CREDIT: Panos Pictures; Graphene's patchwork quilt – diffraction-filtered electron micrograph of graphene grains. CREDIT: Cornell University/Pinshane Y Huang Arend M van der Zande, Carlos S Ruiz-Vargas, Jiwoong Park, Paul L McEuen and David A Muller

Wonder Materials: Graphene and Beyond
Museum of Science and Industry, Manchester
23 July 2016 – 25 June 2017
Free entry

A major new exhibition, **Wonder Materials: Graphene and Beyond**, making its world premiere at the Museum of Science and Industry this month, tells the story of graphene, the world's first two-dimensional material which was isolated by scientists in Manchester.

Wonder Materials is the UK's first major exhibition on graphene and a flagship event of Manchester's programme as **European City of Science 2016**. First isolated at the University of Manchester through a process of creative scientific experimentation, graphene is one of the strongest, lightest and most conductive materials in the world.

This ground-breaking show combines science, art and history to reveal the inspiring story of this amazing material. Made from a single, one-atom layer of carbon, graphene is invisible to the naked eye but has the potential to change the world in a host of areas from energy and electronics to healthcare and mobile phones.

Wonder Materials takes the audience on a scientific journey of discovery, through the past, present and into the imagined future of this new two dimensional material landscape. A combination of

fascinating objects, photographs, music, films and newly commissioned artworks will illuminate the people and places involved.

The exhibition is sponsored by **Haydale**, the group focused on enabling technology for the commercialisation of graphene and other nano materials.

Highlights of the exhibition include:

- A new specially commissioned art installation by **Random International**. *Everything and Nothing* has been developed following their residency at the National Graphene Institute and is the collective's first public commission in the UK since their internationally acclaimed *Rain Room*
- A provocative new work by acclaimed poet **Lemn Sissay** MBE, *The World Wakes* is a call for creative ideas to realise the potential for graphene to change our lives
- A fascinating array of objects which bring the graphene story to life; from a graphite coated Elizabethan cannonball and Rutherford's atomic models to the famous sticky tape dispenser which began the story of graphene's isolation
- An investigation into the scientific breakthroughs made by scientists and professionals at the cutting edge of graphene use around the world
- An immersive recreation of a white room at the National Graphene Institute, where visitors can discover cutting edge applications of graphene use around the world and the personalities of the scientists who are developing them
- New documentary photography by PANOS, showcasing current uses of graphene internationally, from a desalination plant in Abu Dhabi to a mine in Sri Lanka producing high purity graphite for turning into graphene
- An interactive exhibit from **Bare Conductive** which invites audiences to imagine remarkable graphene products of the future – from clothing with built-in computer power to electricity-generating windows

The exhibition is created by the Museum of Science and Industry – a member of the Science Museum Group - in partnership with the **National Graphene Institute**, part of the University of Manchester. It opens to coincide with the **EuroScience Open Forum Manchester 2016 (23-27 July)**, Europe's largest interdisciplinary science meeting.

Museum of Science and Industry Director Sally MacDonald has commented:

"We're very excited to be launching the premiere of this fascinating exhibition into the material of the moment – and in what better place to open than Manchester, where graphene was isolated at the University of Manchester, and during the city's year as European City of Science.

"The Museum of Science and Industry is a place which tells the story of how pioneering ideas can change the world, and this exhibition is a perfect example of this. We are really excited about getting people engaged in finding out more and discussing the opportunities and challenges of this intriguing subject."

In the first section of the exhibition, visitors can delve into the surprisingly quirky history of graphite. This area will illuminate two scientists, Andre Geim and Konstantin Novoselov, who used a maverick

approach involving sellotape to isolate graphene from graphite in 2004 at the University of Manchester. This was a feat which many had thought impossible and which led to Geim and Novoselov winning the Nobel Prize in Physics in 2010.

Also featured in the exhibition is the National Graphene Institute's composer-in-residence Sara Lowes' new musical work **Graphene Suite**, plus visual art by **Mary Griffiths**, the acclaimed Manchester artist who created the huge patterned graphite wall which adorns the National Graphene Institute.

Wonder Materials: Graphene and Beyond will be accompanied by a year-round programme for adults, families and schools, including hands-on science events, evening science socials, "in conversation" style events and creative workshops.

The first of these events will be the *Science in the City* Late on Wednesday 27 July, for which Brighter Sound present the premiere of work created by acclaimed composer **Anna Meredith** and a group of talented female musicians and multi-disciplinary artists following a four-day artistic residency at the Museum of Science and Industry. The work is inspired by graphene and the Wonder Materials exhibition.

The exhibition is expected tour nationally and internationally, including going to the Science Museum, London, in 2018.

James Baker, Graphene Business Director at The University of Manchester, said:

"We are delighted to have partnered with the Museum of Science and Industry on this exciting exhibition. Graphene's story began here in Manchester, and the city continues to play a leading role in graphene's development. This exhibition will showcase the current research that is being undertaken, not only here but on a global scale, to realise graphene's potential."

Haydale CEO, Ray Gibbs said:

"Haydale is hugely proud to be headline sponsor for this UK first. Material science has shaped the world around us and the potential for graphene and other 2D materials is tremendous. We are delighted to be working with the Manchester Museum of Science and Industry and the National Graphene Institute, to help communicate the story of graphene and the positive, environmentally friendly influence it will have on our future."

Additional funding for the exhibition comes from the Engineering and Physical Sciences Research Council (EPSRC). It is also supported by players of People's Postcode Lottery.

The exhibition is curated by Danielle Olsen and Sarah Baines. It is designed by interiors and architecture specialists Universal Design Studio working in collaboration with graphic designers LucienneRoberts+.

Ends

For more information, interviews or hi-res images, please contact Chloe Davies or Chris Baker at Four Colman Getty:

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msimanchester.org.uk/wondermaterials

twitter.com/msimanchester

www.facebook.com/msimanchester

FREE ENTRY: Open from 10am to 5pm

About Danielle Olsen (Curator)

Danielle Olsen is an independent curator with expertise in leading cultural projects that integrate the arts and sciences. She works collaboratively to explore and share complex ideas and experiences in compelling and inclusive ways. Danielle's previous work includes Cabbies' Shelters (The Creative Intelligence Agency), An Idiosyncratic A to Z of the Human Condition (Wellcome Collection), Art in Global Health (6 artist residencies in medical research centres around the world) and the Medicine Man exhibition (British Museum). She has worked closely with historians Theodore Zeldin and Lisa Jardine and with Dan Maslen (Corona Road Films).

About Random International

Founded in 2005, Random International is a collaborative studio for experimental practice within contemporary art. Taking science as a means to develop a new material vocabulary, their work invites consideration of the man/ machine relationship through explorations of behaviour and natural phenomena, with the viewer an active participant.

Random International is led by founders Florian Ortkrass and Hannes Koch, who met at Brunel University before going on to study at the Royal College of Art. Ortkrass and Koch led the creative direction of the studio alongside cohort Stuart Wood until his departure in 2015. Based in London, with an outpost in Berlin, the studio today includes a wider team of diverse and complementary talent.

About Lemn Sissay MBE

Lemn Sissay MBE is the author of several books of poetry alongside articles, records, public art, and plays. He was an official poet for the London Olympics. His Landmark Poems are installed throughout Manchester and London, in venues such as The Royal Festival Hall and The Olympic Park. Sissay is associate artist at Southbank Centre, patron of The Letterbox Club and The Reader Organization, and inaugural trustee of World Book Night.

About The Museum of Science and Industry

The Museum of Science and Industry tells the story of where science met industry and the modern world began. Its mission is to inspire all its visitors, including future scientists and inventors, with the story of how ideas can change the world, from the industrial revolution to today and beyond. Manchester was one of the first global, industrial cities, and its epic rise, decline and resurrection has been echoed in countless other cities around the world. From textiles to computers, the objects and documents held in the museum's collection tell stories of everyday life over the last 200 years, from light bulbs to locomotives.

The Museum of Science and Industry is part of the Science Museum Group, a family of museums which also includes the Science Museum in London; the National Railway Museum in York and Shildon; and the National Media Museum in Bradford.

About The National Graphene Institute at the University of Manchester

The National Graphene Institute is a £61m world-leading centre for graphene research and commercialisation, where academics and industry partners can work side by side on the applications of tomorrow. The University of Manchester currently has more than 40 commercial partners and more than 235 graphene and related 2D

materials researchers. Funded by the Engineering and Physical Sciences Research Council and the European Regional Development Fund. www.graphene.manchester.ac.uk

About Haydale Limited

Haydale are leading the field in creating advanced materials for the next generation of disruptive technologies. They work with graphene and other nanomaterials to enhance the properties of inks, sensors, energy storage, composites, paints and coatings. Haydale are based in South Wales, where they have a purpose built facility for processing and handling materials. They also have offices in Loughborough and South Korea. WEB: www.haydale.com TWITTER: @haydalegraphene

About The Engineering and Physical Sciences Research Council (EPSRC)

As the main funding agency for engineering and physical sciences research, our vision is for the UK to be the best place in the world to Research, Discover and Innovate. By investing £800 million a year in research and postgraduate training, we are building the knowledge and skills base needed to address the scientific and technological challenges facing the nation. Our portfolio covers a vast range of fields from healthcare technologies to structural engineering, manufacturing to mathematics, advanced materials to chemistry. The research we fund has impact across all sectors. It provides a platform for future economic development in the UK and improvements for everyone's health, lifestyle and culture. We work collectively with our partners and other Research Councils on issues of common concern via Research Councils UK. www.epsrc.ac.uk

About People's Postcode Lottery

People's Postcode Lottery is a charity lottery. Players play with their postcodes to win cash prizes while raising money for charities and good causes across Great Britain and internationally. As an External Lottery Manager, People's Postcode Lottery manages multiple society lotteries promoted by different causes and supporting a range of good causes. For details on which society lottery is running each week, visit postcodelottery.co.uk/society.

About European City of Science and the EuroScience Open Forum

In 2016 the title of European City of Science comes to the UK for the first time. Manchester is a city of radical thinking, inspirational science and world changing firsts – it is the city where Rutherford first split the atom and Rolls met Royce, it's the home of the first passenger railway station and programmable computer, and lays claim to the first test tube baby and the isolation of graphene. For further information, visit: www.manchestersciencecity.com

The highlight of the European City of Science tenure is the EuroScience Open Forum (ESOF) 2016, Europe's largest interdisciplinary science meeting which attracts more than 4500 leading researchers, thinkers, innovators, policy makers, journalists and educators from more than 90 countries.

ESOF is a biennial event that showcases innovation, research and technology and promotes dialogue, unity and integration within the European science, research and business communities. It will take place in the UK for the first time at Manchester Central (23-27 July 2016). For more info, see: www.esof.eu

About Universal Design Studio

Universal Design Studio is an award winning architecture and interior design practice based in London. It works internationally on commissions including boutique hotels and restaurants, retail spaces, galleries and renowned cultural institutions. Universal uses a bespoke approach for each client, rich in intellectual rigour and creativity, to create inspiring places with a powerful visual impact. Notable projects from Universal Design Studio include the design of Ace Hotel London, and a commission from the Science Museum to design the architectural framework of the Information Age Gallery. Their most recent projects include the design of Singapore-based Odette restaurant by Julien Royer in the newly revitalised Singapore national art gallery and a flagship store for luxury leather goods brand J&M Davidson on Mount Street, London.

About LucienneRoberts+

LucienneRoberts+ is a small London-based studio committed to making accessible, engaging graphic design within a socially aware agenda. Believing that ethical design is defined by its ability to increase quality of life in the broadest sense, the team at LR+ place emphasis on clear thinking, visual simplicity and the application of craft skills. LR+ projects span exhibition design, books and corporate identity for 3-d, print and screen and

recently include Women Fashion Power, at London's Design Museum, 3-d design by Zaha Hadid Architects and the identity and permanent interpretation for the UCL Pathology Museum.

