

### **Business Design Centre | London**

## Programme - Day 1: Wednesday 19th February 2020

- 08:00 Doors open for exhibitors
- 10:00 Doors open for delegates
- 10:10 VIP walk-around and photo call
- 11:00 **Plenary Session** Chaired by Dr. Alicia Greated (CEO at KTN)

Welcome Address by Sir Mark Walport (Chief Executive, UKRI)

Keynote addresses:

- Supporting Business Innovation Dr. Ian Campbell (Interim Executive Chair, Innovate UK)
- UK Academic Research in Materials, Examples of Excellence Professor Phil Withers (Regius Professor of Materials & Chief Scientist, Henry Royce Institute)
- Industrial Leadership in Materials Lord Whitby, President of Surface Engineering Association
- Commercialising Breakthrough Materials an Industry Case Study:
  - Dr. Amanda Quadling (Technical Director, M&I Materials)
  - Richard Banks (Laboratory & Technical Manager, Indestructible Paint Ltd.)
  - 12:30 VIP lunch / photo call / tour of exhibition
  - 13:00 Lunch / 1-2-1 meetings & networking

#### 13:30 - 17:30 Afternoon Seminars

	Auditorium (200)	Village Green L (150)	Village Green R (150)	Exec Centre (75)	Faraday
13:30 - 15:45	Academic Conference - led by Royce & EPSRC	Towards a Smart Sustainable World: • Biomimetic Textiles - a Design-STEM approach - led by MaDE	Materials for Defence and Security Challenges - led by Dstl	Masterclass: IP and R&D Tax Credit	Investor Pitch Training for SMEs and Spin- Outs
16:00 - 17:30	Academic Conference - led by Royce	Exhibitor Pitches - led by KTN	Advances in Surface Engineering - led by SELF	Lightning Talks: design and material exchange - led by MaDE	

17:30 - Exhibition / Networking & Evening Reception

20:00





## **Business Design Centre | London**

## Programme - Day 2: Thursday 20th February 2020

- 08:30 Doors open for exhibitors
- 09:00 Doors open for delegates
- 10:00 Plenary Session

Welcome to Day 2, Prizes and Keynote Addresses: Simon Edmonds (Deputy Executive Chair/Chief Business Officer, Innovate UK) Sue Dunkerton OBE (Director, KTN)

#### 10:30 - 16:00 Seminars

	Auditorium (200)	<b>Village Green L</b> (150) <sup>led by</sup> UKCPN	Village Green R (150)	Exec Centre (75)	Faraday	
10:40 - 11:50	Game- changing aerospace materials & processes	UK actions towards zero plastic waste	Transforming Foundation Industries - the journey so far	Metamaterials 1 - Academic Research	Investor Panel (closed session - invite only)	
12:00 - 13:10	Materials contributions to driving the electric revolution	Packaging of the future: implications of recycled/novel materials and food contact	Materials for Transforming Construction	Metamaterials2 - Industrial Applications		
13:30 - 14:40	National Facilities for the Investigation and Development of High Value Materials - led by STFC	Packaging of the future: our research, your innovation	Accelerating adoption of new materials into applications	2D Materials for semi- conducting applications		
14:50 - 16:00	Electrification of transport batteries - the materials challenges	Zero Plastic Waste – UKRI supported innovations	Challenges and barriers to innovation and use of new materials in clinical applications	Digital processes & new business models for commercialising novel materials		
16:30	1-2-1 Meetings / Networking					
17:00	Exhibition Close					





## **Further Information on Sessions**

## Day 1 - 13.30 - 17.30 Academic Conference: Advanced Materials for a Sustainable Society (led by the Henry Royce Institute)

The Henry Royce Institute is the UK's National Centre for advanced materials research and innovation. Funded by the Engineering and Physical Science Research Council, the Institute was set up to capitalise on the UK's significant expertise in materials science and engineering. The Royce aims to accelerate the commercial impact of materials research and deliver positive societal impact for the UK. From biomedical materials, through plastics sustainability to energy efficient devices, during this session the Royce will pose the challenge of developing a truly sustainable societies to the materials community and share research that will help to unlock the potential in key areas including:

- Green Energy & Fusion Power
- Infrastructure & Mobility
- Digital & Communications
- Circular Economy
- Health & Wellbeing

13:30 - 13.55 Opportunities for Research & Innovation in Advanced Materials - Jane Nicholson, EPSRC

13.55 - 14:20 Materials for a Sustainable Society - Prof. David Knowles, Henry Royce Institute

14:20 -14:45 Formulation & Robotics - Prof. Andy Cooper, University of Liverpool

14:45 - 15:10 Organic electronic devices for drug discovery - Dr. Roísín Owen, University of Cambridge

15:10 - 15:35 Advanced Metals Processing - Doing more with less - Prof. Martin Jackson, University of Sheffield

16:00 - 16:25 Saving the world one piece of plastic at a time - Prof. Michael Shaver, University of Manchester

16:25 - 16:50 Materials for Energy Efficient Electronics - Prof. Manish Chhowalla, University of Cambridge

16:50 - 17:10 Six really big problems in materials science - can quantum technologies contribute?- Prof. Neil Alford, Imperial College London

17:10 - 17:30 Materials for Realising a Fusion Power Plant - Dr. Heather Lewtas, UKAEA





#### Day 1 - 13.30 - 15.45 Investor Pitch Training for SMEs and spin-outs

#### 13:30 - 14:30 Masterclass: The Investors' Perspective (open session)

The journey from company creation to public flotation has a number of funding stages sometimes referred to as the funding escalator. This is a simplified view and of course there are exceptions, but it gives you an idea of the types of funding available and the expectations of those investors.

Join this masterclass to learn about the different types of investors and what they look for.

#### 14.45 - 15.45 Masterclass: How to Pitch for Investment (open session)

Most people do not like pitching - it is often seen as a one-way communication. We need to learn how to overcome our worries and see this as a key part of our role as a founder. Pitching forms part of an integral means to attract investors. Join this masterclass to learn how to develop an enticing pitch.

#### Day 1 - 13.30 - 15.45 Masterclass: IP and R&D Tax Credit - led by Potter Clarkson

The IP masterclass will cover the following topics with a material focus:

- Aligning your IP strategy with your R&D and commercialisation process
- Identifying and handling IP opportunities and risks at each stage
- Maximising budget and time resources
- (Tentative) R&D tax relief considerations in the commercialisation process

### Day 1 - 16.00 - 17.30 Lightning Talks: Design and Material Exchange led by MaDE

How can material engagement and experimentation reveal new material capabilities and lead to unexpected breakthroughs? A quick fire session of 'show and tell' presentations that showcase the value of design, making and materials exchange. Leading designers and makers across glass, paper, ceramics, and jewellery will share their work with industry on the development of innovative materials, and novel applications of materials. Speakers include Les Bicknall (Senior Lecturer in Textile Design, Norwich University of the Arts), Sofie Boons (Jeweller & Research Associate. Centre for Fine Print Research at the University of West of England), Tavs Jorgensen (Ceramist & Associate Professor, Centre for Fine Print Research at the University of West of England) and Vanessa Cutler (Glass Artist & Programme Leader, Chichester University). Chaired by Dr Bernie Rickinson, Director, Creative Interfaces.



Innovate UK



### Day 2 - 10.40 - 11.50 Transforming Foundation Industries

Foundation industries (FI), including sectors such as metals, chemicals, glass, cement, paper, and ceramics, produce 75% of all the material in our economy and are vital for the UK's manufacturing and construction sectors. Innovate UK/UKRI launched an ISCF £66m funding competition to catalyse cross-sector and supply chain collaboration and accelerate innovation through targeted intervention. This seminar will present the foundation industries sectors' views on opportunities for cross-sector collaboration and innovation to improve the productivity and competitiveness of the companies and supply chains in these sectors and anchor them in the UK.

- 10.40 ISCF Transforming Foundation Industries Overview Bruce Adderley, Challenge Director, Innovate UK
- 10.50 Foundation Industries cross-sectoral innovation from chemicals/cement perspective Dr. Greet van Eetvelde, INEOS Group
- 11.00 UK Clay Brick and Tile Industry 2020 Greg Crownshaw, Wienerberger
- 11.10 Opportunities for cross-sector collaborative R& D with the glass sector- Robert Ireson, Future Glass
- 11.20 Discussion Panel (20 mins)

## Day 2 - 10.40 - 11.50 Game Changing Aerospace Materials and Processes

Materials remain an underpinning technology for the UK Aerospace Sector. The ISCF Wave 1 Fund 'Manufacturing and Future Materials' provided £26 million of funding for a number of projects involving light weight composite materials. This session will describe the progress made on two of these projects as well as present aerospace funding opportunities for SMEs. Talks include:

- 'Building upon success; the National Aerospace Technology Exploitation Programme (NATEP) Money and Mentoring Approach'
  Harriet Wollerton, NATEP Programme
  - Director, ADS
- 'Developing out-of-autoclave composite materials for cost-competitive aerospace structures'
  - Lee Allgood, Project Manager for Multi AXial Infusion Materials, Hexcel
- 'Game changing processes for aerospace and much, much more besides: the fruits of the UK's largest investment in world-leading composites capabilities at the National Composites Centre'
  - Graham Harrison, Strategic Partnerships Director, National Composites Centre





## Day 2 - 10.40 - 13.10 Metamaterials - Academic Research & Industrial **Applications**

Metamaterials are emerging from the global research base and are now finding real-world applications. The UK has some world-leading research taking place at some 25 Universities. From limiting noise pollution from the proposed high-speed HS2 rail link from London to the North to increasing the high-resolution images of clinical MRI scans to improve the ease of detection of anomalies and providing accuracy in successful diagnosis. The MRE 2020 Metamaterials Seminars will showcase what is happening today in the UK in terms of R&D and where future breakthroughs can be expected and will demonstrate key examples of how and where Metamaterial technologies are being commercialised.

#### **Speakers:**

#### Seminar 1 - Academic Research

- Metamaterials v2.0 Beyond Cloaking - Prof Alasdair Hibbins, Exeter University
- Acoustic & Mechanical/elastic/seismic metamaterials - Prof Richard Craster, Imperial College
- Prof Ian Youngs, Dstl
- Dr. Gianlucca Memoli, University of Sussex
- Prof Kevin MacDonald, University of Southampton

#### Seminar 2 - Industrial Applications

- Dr. Irina Khomova, Metaboards Limited
- Dr. Daniel Elford, Sonobex Limited
- Kevin Mitchell, BAE Systems
- Prof Sajad Haq, Qinetiq
- Kevin Mackrodt, Artemis Optical l imited





### Day 2: 10.40 - 16.00 Plastics Sessions in Village Green L - led by UKCPN

#### Session 1 (10.40-11.50): UK actions towards zero plastic waste

Facilitated by Sally Beken, KTM – Polymers, Plastics and Elastomers and UKCPN lead, Knowledge Transfer Network.

This session has two objectives:

1). To provide attendees with an overview of the UK Circular Plastics Network initiative and the wide range of activities and support offered to both industry and academia to share knowledge, collaborate and innovate in view to transition towards a more circular plastics economy.

2).To provide attendees with an introduction to the Smart Sustainable Plastics Packaging Industrial Strategy Challenge Fund (SSPP ISCF) and an update on the current funding calls relevant to this challenge.

Speakers include: Sally Beken (KTM – Polymers, Plastics and Elastomers, KTN), Veronica Sanchez-Romaguera (KTM - Circularity and Smart Materials, KTN) Paul Davidson (SSPP ISCF Challenge Director, Innovate UK), Nick Cliffe (SSPP ISCF Deputy Challenge Director, Innovate UK) and Sara Banning (SSPP ISCF Innovation Lead, Innovate UK)

## Session 2 (12.00 - 13.10) Packaging of the future: implications of recycled/novel materials and food contact

Facilitated by Sally Beken

Innovations in the food packaging sector are at the forefront of the government-funded £60m Smart Sustainable Plastic Packaging Challenge. UKCPN has recognised the need for innovators, entrepreneurs and materials experts who may be looking at new and novel materials, and those with recycled content, to understand the implications of their innovations with respect to standards, food contact safety and consumer considerations; may they be dietary, allergenicity of religious factors. You can attend this valuable session where three senior speakers will inform you of the current situation and considerations to be taken in this space.

Speakers:

- Tim Chandler, Senior Scientific Officer, Food Standards Agency
- Dr.Emma Bradley, Head of Programme Food Quality & Safety, Fera Science Ltd.
- Sara Walton, Sector Lead Food, BSI





#### Session 3 (13.30 - 14.40) Packaging of the future: our research, your innovation

Facilitated by Veronica Sanchez-Romaguera, KTM – Circularity and Smart Functional Materials, KTN and UKCPN

Do you have an industry challenge that could be solved in collaboration with academia? Are you looking for academic expertise and/or capabilities of relevance to packaging innovation? Are you looking for partners to apply for funding? In this session you will hear from a number of leading researchers/research organisations in the UK pitching their expertise, capabilities and collaboration opportunities of relevance for packaging innovation and the Industrial Strategy Challenge Fund Smart Sustainable Plastic Packaging funding calls.

#### Session 4 (14.50 - 16.00): Zero Plastic Waste – UKRI supported innovations

Facilitated by Veronica Sanchez-Romaguera

In this session you will hear about how UKRI supports companies to innovate in solutions towards zero plastic waste - from a company perspective and also from an open Q&A panel session.

## Day 2: 13.30 - 14.40 Commercialising 2D Materials for Semiconductor Applications

The 2D materials market is expected to reach \$1.6bn by 2025 at a high growth rate of 72.8%, enabled by the large investment in graphene R&D and scalable manufacturing and raised interest of end-users in graphene applications. However, this market has the potential to reach over \$70 billion by 2030 through the commercialisation of non-carbon 2D materials and its applications in semiconductor devices. MRE 2020 brings a forum to showcase the current state of the art in semiconductor 2D Materials and discuss how the UK can be at the forefront of its commercialisation.

- 13.30 2D Materials Commercialisation Landscape Tatiana Correia, KTN
- 13.40 Graphene and Related Materials for Photonics Andrea Ferrari, Cambridge Graphene Centre
- 13.55 Low Cost Production of 2D materials for Semiconductor Applications Weiping Wu, City, University of London
- 14.10 Metal dichalcogenides and other 2D semiconductor materials for applications such as sensing and energy storage Nigel Matthews, Strem Ltd
- 14.25 Title to be confirmed, Jason Teng, Potter Clarkson





## Day 2 - 13.30 - 14.40 National Facilities for the Investigation and Development of High Value Materials - led by STFC

The Science and Technology Facilities Council (STFC), which is part of UKRI, manages the UK's world leading large scale research facilities based at a number of locations across the UK. These facilities provide a range of research techniques using neutrons, lasers, x-rays and high performance computing. This session will introduce you to the range of facilities available and give a number of examples of the techniques used. The session will also provide an overview of how industry can take advantage of current incentives available to access these facilities. There will be a presentation from an industrial perspective outlining advantages of using cutting edge investigation techniques.

- Professor Ric Allott will present an overview of the national research facilities and how STFC supports the UK industry
- Dr Kathryn Welsby will describe the range of techniques available through the Central Laser Facility
- Dr Graham Appleby will give details of the ISIS Neutron and Muon source
- Dr Jonathan Smith will describe how the Hartree Centre can accelerate your innovation

# Day 2 - 14.50 - 16.00 Challenges and barriers to innovation and use of new materials/devices in clinical applications

The main focus of this session is presenting key challenges and barriers to innovation and use of new medical/dental materials and devices in clinical applications. Some of the areas that will be discussed include the speakers' clinical experiences, involvement with industry and the challenges which need to be addressed to accelerate the introduction of new medical devices into clinics and new technologies used in dentistry, neurosurgery and neuro-oncology. The new regulations around MDR and IVDR and how they will affect new innovations will also be brought up.

Speakers:

- Dr. Tom Clutton-Brock Senior Lecturer at the Institute of Clinical Sciences (College of Medical and Dental Sciences, University of Birmingham)
- Dr. Tom Bereznicki BDS (Edin), MFDTEd MFGDPEng Honorary Clinical Teacher in the department of Primary Care, The Dental Institute at King's College London.
- Professor Keyoumars Ashkan, lead for Functional and Oncological Neurosurgery at King's College Hospital.





# Day 2 - 14.50 - 16.00 Faraday Challenge - The electrification of transport batteries - the materials challenges

This panel session aims to highlight a selection of innovative projects coming out of the Faraday Battery Challenge community. This community of innovators is developing new electrodes, novel chemistries, using metamaterials and even the application of AI to battery materials selection.

### Days 1 & 2: Boosting your Presentation and Networking Skills

Materials Research Exchange and KTN have partnered with training consultancy Impact Factory to help you make the most of this year's exhibition by boosting your Presentation and Networking skills:

UK

RÌI



- Refresh and enhance your Public Speaking skills to make your Presentations memorable and inspiring. Calm your nerves and prepare for your sessions.
- Become an ace Networker. Learn to join and leave groups, meet new people and build lasting business relationships when representing your organisation.

On Wednesday 19th and Thursday 20th February, Impact Factory's training consultants will provide you with practical skills to be used immediately. Each surgery will be 45 minutes. Sign-up via Meeting Mojo. www.impactfactory.com

	Knowledge Transfer Network		
16.10 – 16.55	11.10 – 11.55		
15.20 – 16.05	10.20 – 11.05		
14.30 – 15.15	09.30 – 10.15		
Networking - Unit 123 (25 places available):	Networking - Unit 123 (25 places available):		
16.10 – 16.55	11.10 – 11.55		
15.20 – 16.05	10.20 – 11.05		
14.30 – 15.15	09.30 – 10.15		
(10 places available):	(10 places available):		
Presentation/Public speaking - Unit 137	Presentation/Public speaking - Unit 137		
Wednesday 19th February Surgeries	Thursday 20th February Surgeries		