

# The Polymer Society

A Division of the Institute of Materials, Minerals and Mining

## Spring 2019 Newsletter

In this edition we talk about involvement in the Single Use Plastics debates, our 2019 Award Winners, the finalists of the latest Design Innovation in Plastics award, the revamped Polymer Study Tours for teachers and Upcoming Events including the latest RIEG meeting, PPE19 in Bradford and IRC 2019 in London including Rubber Training Courses

### ✓ The Continuing Debate about the Future for Single Use Plastics and Waste/Litter Disposal

We continue to be active in bringing sound sense and science into these discussions and we have just contributed to the IOM3 submission to the recent Resources and Waste Strategy Consultations requested by HM Treasury and DEFRA on the following consultations:

- Introducing a Deposit Return Scheme (DRS) for drinks containers (bottles and cans)
- Changes to the packaging waste producer responsibility system
- A plastic packaging tax

### ✓ IOM3 2019 Awards in the Polymer and Elastomer Disciplines

We congratulate the winners in the Polymer and Elastomer disciplines.

#### **Prince Philip – For Polymers in the Service of Mankind – Nextek**

Formed as a consultancy to advise on the recycling of polymers, NEXTEK has grown into an organisation with global reach, involving itself in projects around the world to tackle issues of plastics pollution. By working with other companies to help manage the waste stream and developing new materials and processes to tackle the problem, NEXTEK has become engaged in a number of global projects involved in the clean-up of plastics from the oceans and tackling the waste issue at source in developing countries. Its remit is wholly topical, and of global importance to the survival of the planet and its resources and thus truly satisfies the criteria of this award.

#### **Colwyn Medal - To an individual for outstanding services to the rubber industry of a scientific, technical or engineering character - Dr C Michael Roland**

Dr Roland is the preferred candidate due to his innovative contributions to both fundamental and practical aspects of rubber physics and engineering. Developments he has made have had impact and his efforts and support of the sector have been

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recognised by his peers. His contribution to the rubber industry has also been acknowledged by the awards of both the prestigious Melvin Mooney Award and Charles Goodyear medal by the Rubber Division of the American Chemical Society. His publications have been cited over 16,000 times. He authored *Viscoelastic Behavior of Rubbery Materials*, Oxford Univ. Press (2011). Papers in *Macromolecules* (1991), *Physical Review Letters* (2014), *J. Chemical Physics* (2017), and *J. Applied Physics* (2018) were featured by journal as "most innovative and influential", "particularly noteworthy", and "ground-breaking".

**Allan Glanvill Award-** For published work in an IOM3 journal of particular merit in the field of polymers.

Highly stretchable and sensitive strain sensors using nano-graphene coated natural rubber in *Plastics, Rubber and Composites*, (2017) 46:7, 301-305, DOI: 10.1080/14658011.2017.1336345

S Tadakaluru, T Kumpika, E Kantarak, W Sroila, A Panthawan, P Sanmuangmoon, W Thongsuwan & P Singjai

**James S Walker Award** - For a student project, already examined, on the subject of polymers - **Eleanor Howland** Department of Materials, University of Oxford

Also to note that the **Platinum Medal** – A premier award in recognition of outstanding contributions to materials science, technology and industry, nationally or internationally was awarded to **Professor Robert Young**

Prof Robert Young FRS FREng CEng FIMMM. Robert is one of the world's foremost materials scientists and this has been recognised through his elections as a Fellow of the Royal Society, the Royal Academy of Engineering and the Academy of Europe. His innovative research has transformed our understanding of the relationships between structure and mechanical properties in polymers and composites. He has introduced a number of revolutionary techniques that have given a completely new insight into the micromechanics of deformation in fibres and composites. In particular, he has pioneered the use of Raman spectroscopy for the analysis of deformation processes that take place in fibres at the molecular level. This research has been recognised through numerous invitations to give Plenary and Keynote lectures at International Conferences and by IOM3 through the awards of the Griffith Medal (2002), Leslie Holliday Prize (2011) and Swinburne Medal and Prize (2012). In addition to his achievements in research he has undertaken considerable administrative duties in support of the materials discipline. Between 2004–2009 was the founding Head of the School of Materials in the University of Manchester, which is now the largest university materials department in the UK and the focus of major UK materials research initiatives such as the Henry Royce Institute. He also chaired the Materials Panel in the 1996 and 2001 Research Assessment Exercises for the HEFCE. Furthermore he is co-author of the highly-successful, best-

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selling textbook, "Introduction to Polymers", the third edition of which was published in 2011.

## ✓ Finalists announced for the 2019 Design Innovation in Plastics Awards

Five inspiring and novel new products to enhance health and wellbeing have been selected by the judging panel to contest the final of the Design Innovation in Plastics competition, 2019.

Headline sponsored by Covestro, and the longest running student plastics design competition of its type, it is held every year to encourage university students to come up with brand new products made primarily of plastic.

Organisers, IOM3 and the Worshipful Company of Horners, this year set the challenging brief of improving health, wellbeing or encouraging exercise, with a product which has the qualities of longevity and sustainability.

The panel of renowned industry judges carefully examined 149 entries at the preliminary judging stage before selecting five finalists, whose entries most closely matched the brief and satisfied the competition criteria.

Chairman of judges, Richard Brown (RJG Technologies), commented: "The brief this year was quite wide-ranging and was clearly open to different interpretations – but also provided the opportunity for more original thought.

"There was much debate among the judges, and it was eventually decided to pick five finalists rather than the usual six, as these were the candidates whose entries met the criteria. Having progressed to the final, we will be looking for these students to further develop their concepts taking into account the judges' guidance."

The finalists go through to a final judging round on May 24, and the overall results will be announced at a ceremony in London on July 5. The winner will receive a trip to Germany to visit Covestro, along with a cash prize. A key feature of the competition is that every finalist also receives short industry placement with one of the competition sponsors: Brightworks, HellermannTyton, Innovate Product Design, PDD and RJG Technologies.

The five finalists are:

Louis Farnsworth, 3rd year product design student, De Montfort University

Product Name: Air - A smart breathing aide for asthmatics to reduce asthma flare up and irritation to the lungs and airway when exercising.

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Daniella Kalligorsky – 3rd year product design student, Technological University Dublin.  
Product name: Checkkit - A new way to raise breast cancer awareness by promoting self-examination.

Christopher Kay – 4th year product design student, De Montfort University.

Product name: EnviroJect – a re-usable syringe system, providing a 97.8 per cent reduction in plastic syringe wastage per year within the NHS.

Namgyun Ryu – 1st year MSc Integrated Product Design student, Brunel University

Product name: Tri Walker – A walking assistant product for enhanced mobility and health for the elderly, adding improved functionality to conventional walking aids.

Kai Wang – 4th year integrated product design student, Brunel University.

Product: Pot luck - A combined cooking and storage device that encourages and simplifies the production of stock cubes using avoidable food waste.

## ✓ New two day Polymer Study Tours for Teachers announced

The Polymer Study Tours have been designed to improve teachers and student teachers of Design and Technology in their subject knowledge, provide suggestions for practical activities and give first hand experience of the polymer industry in action. They are a careful blend of lectures, practical sessions using readily available resources to demonstrate key polymer-related concepts, industry tours, and discussion opportunities based on detailed information sent out beforehand, and they are open to practicing and trainee teachers from all regions of the UK. The residential aspect provides the ideal opportunity to network with other like-minded teachers from across the country. The sessions will all be delivered by experts from industry and academia and the Tours will include a crucial final session, led by a practicing teacher, looking at how you can use the content from the course in your classroom teaching. We have liaised closely with Design & Technology teachers when devising the programme so that it links closely with the polymer topics in the 11 to 18 curriculum. All delegates will receive a comprehensive resource pack following the event, including electronic literature and physical samples.

There are only 15 places available on each Tour with the courses having been revamped to a two-day format for 2019 and they will be running at three venues as follows.

Edinburgh Napier University 16 & 17 June 2019

Victrex, Thornton Cleveleys, Lancashire 23 & 24 June 2019

WHS Plastics, Minworth, Warwickshire 27 & 28 September 2019

The courses are free of charge and all delegates are eligible to apply for a contribution of up to £250 towards the cost of travel or cover. [Full details](#)

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## ✓ A Reminder about our upcoming events

(i) The next [Rubber in Engineering Group](#) (RIEG) Afternoon Technical Discussion Meeting (ATDM) will be on 28<sup>th</sup> June at the IOM3 HQ in London. It is on the topic of [Elastomers in Sport](#). This ATDM will examine how elastomer materials can be effectively utilised in sporting applications. The event is free to attend thanks to the sponsorship of the RIEG Technical Programme by [ARTIS](#). To register for the meeting then follow this link at [Eventbrite](#) to register.

The provisional speaker programme, scheduled to start at 1.30pm and finish at 4.00pm with Tea and Coffee, includes:

- Graphene-enhanced elastomer composites for sports applications - Maria Iliut & Aravind Vijayaraghavan (University of Manchester & Grafine Ltd)
- Testing of elastomer properties for use in sports footwear - Hannah Boughey, SATRA Technology
- Carbon Nanotubes for Improved Performance in Motorsport - Izaak Watson, Martins Rubber Company

Further details of each talk are available at the [RIEG](#) website. There is still one space for an additional speaker. If you are interested then contact the event champion [Dr Matthew Thornton \(Haydale\)](#).

(ii) [PPE'19](#) Tues 9 – Wed 10 July 2019 Bradford, UK

There will be an excellent range of international and industry speakers due to speak at Polymer Processing and Engineering 19. The overall emphasis is on **precision processing** (which implies knowing what is required and controlling it in manufacture), including green processing and upcycling.

Major sessions will be Towards a Circular Economy for Plastics, and Precision Processing: Med Tech. Early career researchers from around the world (including China, Italy, Israel, Brazil) involved in our Polymer Engineering International Research Exchanges, will participate. As part of the meeting, there will be a celebration of the 30th anniversary of the Polymer Interdisciplinary Research Centre, bringing together founder members and others involved in the success of the Polymer IRC. The 150th anniversary of the IOM3 will also be celebrated. The Polymer Society is closely involved in this event with several of our Board members contributing.

(iii) [IRC2019](#)

The call for papers for the next International Rubber Conference IRC2019 has been overwhelmingly successful. With more than 265 abstracts submitted before the deadline from 30+ countries. As a reminder IRC 2019 is to be held between the 3rd-5th

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September. The location is The Oval, London, UK. IRC2019 is being hosted in Europe for the first time in 4 years. The IRC is an annual global event with both a large technical conference and an exhibition. IRC2019 will present a full and varied technical programme of original papers reflecting current research and development within the rubber industry. The detailed scope for the conference is available now as well as details about the few remaining sponsorship and exhibition opportunities at the event. The full conference speaker programme will be announced soon. There are significant discounts for attending the conference for students, early bird registrations, presenting authors and for members of any of the IRCO membership organisations including: AFICEP, VKRT, SGF, DKG, IOM3 or the ACS.

**IRC Training Courses** Three separate training courses will run on Monday 2<sup>nd</sup> September covering Basic Rubber Compounding, Use of Rubber in Design of Engineering Components, Rubber-To-Metal Bonding Agent (morning) and Sipiol® Weatherstrip, Flock Adhesives, Glass Encapsulation Adhesives (afternoon).

[Full details and registration](#)

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Please remember that you can contact us about any issues that you wish to bring to our attention, for whatever reason.

Many thanks for your attention.

Stuart Patrick

Interim Chair Polymer Society Board

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