

# IChemE London & South East Coast

## Newsletter

February 2021

### Welcome!

*In our newsletter last year we reported that we had been challenged by the temporary loss of our London base. As the New Year started we thought we had a more settled path ahead of us. That was slightly wide of the mark.*

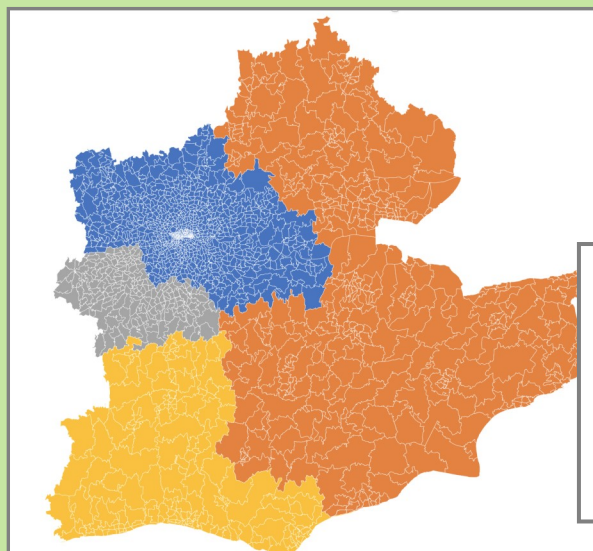
*As a Member Group, we started our COVID-19 contingency planning on the 4<sup>th</sup> March - somewhat ahead of the curve. Despite the new challenges we have successfully delivered some virtual events over the year and our intention is to ramp up this activity in 2021. For the moment all our committee meetings are held on-line. All members are welcome to take part. If it will be your first meeting, to get fully briefed and receive your videoconference invitation, please contact [londonsemseq@ichememember.org](mailto:londonsemseq@ichememember.org) beforehand.*

*On the 24<sup>th</sup> of March 2021 we will hold our **next AGM**. All the formal posts will be up for election: Chair, Treasurer and Secretary. Anybody thinking of running is recommended to get involved with the group prior to the AGM so they have a full appreciation of the job scope. Of particular note is that the post of Secretary has been empty for some time.*

### Facts & Figures

The London & SE Coast Member Group is the largest in the IChemE by some margin. We have just over 3,000 members locally, representing about 8.3% of the worldwide membership. That's about 1,000 chartered members, about 750 students (by the end of each academic year), with the remaining membership somewhere in between.

Our catchment area includes most of the urban Greater London area (EC, WC, E, SE, SW, W, NW, N, DA, BR, HA, UB, WD, EN, IG and RM postcodes), apart from much of the SW quadrant which falls under the (inactive) Surrey & Sussex MG. We also cover areas to the east towards the coast: south Essex, Kent and parts of East Sussex (SS, CM, ME, CT and TN postcodes).



- L&SECMG (Greater London)
- L&SECMG (Home Counties)
- S&SMG (Greater London)
- S&SMG (Home Counties)

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### Meet the Team

#### Post holders

Keith Hanson - Chair

Colin Tamsett- Treasurer

Pablo Garcia-Trinanes - Vice Chair & acting Secretary

Andrea Iliopoulou - Events coordinator

Elisabetta Negri - Newsletter Editor

Maximiliano Jara Fornerod —YMF Chair (2020)

Ruben Altamirano-Baker - YMF Chair (2021)

Maria Papathanasiou - YMF Chair (2019)

Wenqian Chen - Membership coordinator

## Member News

### AGM (05 February 2020)

Our 2020 Annual General Meeting (AGM) was held at Society of Chemical Industry headquarters on Wednesday 5 February 2020. The meeting, led by the re-elected Chair of the L&SEC members group Keith Hanson, started with a review of the 2019 highlights and budget of the main group. The presentation was followed by an award ceremony in which six of our members, Colin Tamsett, Pablo Garcia-Trinanes, Elisabetta Negri, Maria Apostolopoulou, Domenico Macri and Ruben Altamirano, were recognised for their significant contribution to the group during the previous year.

The elected L&SEC committee for 2020 was announced after the award ceremony. This includes Keith Hanson (Chair), Pablo Garcia-Trinanes (Vice Chair), Colin Tamsett (Treasurer), and Domenico Macri (Secretary).

The ceremony was followed by the talk “**Chemical Engineering - getting the right focus for the benefit of key stakeholders**” delivered by the president of the IChemE, Professor Stephen Richardson. During the talk, some key aspects of ‘Strategy 2024’ were highlighted, as well as the concept of mastery as part of the content of undergraduate ChemEng courses, among other relevant information to the stakeholders.



## Technical Events

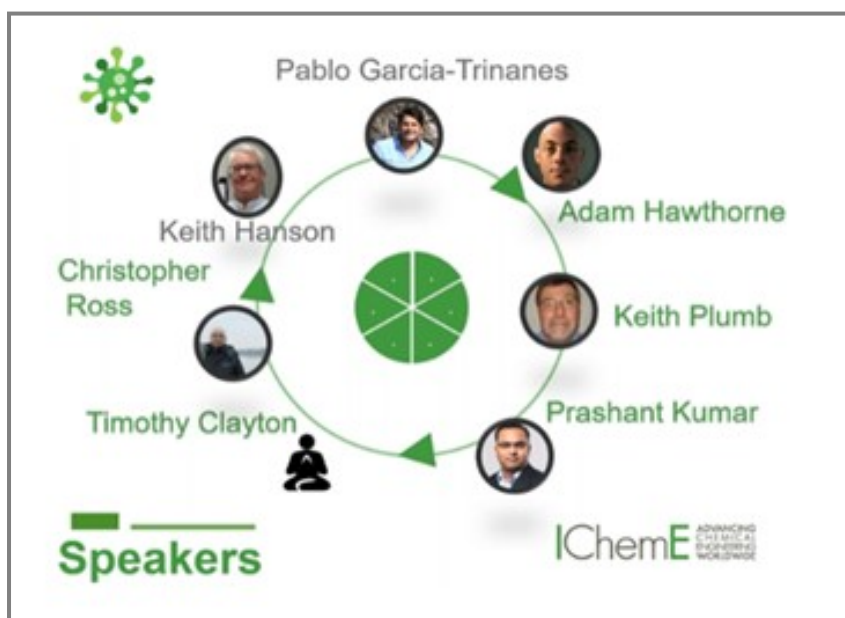
### Tackling the challenges presented by COVID-19 webinar (22 July 2020)



In this webinar coordinated by Associated Prof. Pablo Garcia-Trinanes (University of Greenwich) a few key aspects related with how the virus SARS-CoV-2 is challenging the community have been reviewed with the collaboration of different expert panellists.

Global and IChemE efforts to respond to the COVID-19 pandemic were discussed with special attention to IChemE response to knowledge of good practice, infection transmission vectors, evidence of coronavirus being airborne and vaccines.

The experts who participated were Prashant Kumar, Christopher Ross, Adam Hawthorne, Keith Plumb and Timothy Clayton. This webinar is still available on demand in the archive of events at the Particle Technology and Pharma SIG sites.



## Technical Events

### *The Road to Zero-carbon Transport in London (14 January 2021)*

The first of a new series of IChemE / IMechE events has just been held. Forced on-line, a key objective was to involve the audience more by getting them to ask their own questions - rather than being curated through an organiser. We therefore moved to using the Microsoft Teams platform to host the session. Demand exceeded the 250 licence limit by a considerable margin, but many audience members did get to quiz the speakers directly. So our key objective was achieved.

Rosalind O'Driscoll, of the Greater London Authority, set the scene by focussing mainly on NO<sub>x</sub> and the ultra-low emission zone - and the integrated strategies the GLA have in place to further reduce air pollution. Martin West and Mark Poulton, both of Transport for London, responded with more details of the response. Martin covered the bus strategy, including both battery and hydrogen technologies and included references to refuelling and energy sources. Mark took us through the timelines for moving to electric vehicles and the challenges posed by heavy freight. Also included were reviews of the power infrastructure, both current and proposed, to support greater use of electricity in transport.

This is hoped to be one of a series of events considering different aspects of life in a low-carbon London.



## D&I Events

### *Celebrating International Women in Engineering Day (INWED) (23-24 June 2020)*



Organised in collaboration with the IMechE, and coinciding with International Women in Engineering Day, SheCanEngineer delivered two STEM webinars designed to kick-start the “engineering as a career” dialogue with younger children, especially girls.

The first webinar on 23 June featured a series of impactful presentations from engineers across multiple industries, providing attendees with key insights into the engineering profession. Attendance at the webinar was over 280 with live question and answer sessions at the end.

**“Engineers – How are they planning for the next big challenge nobody’s talking about?”** (Speakers: Georgina Seely Head of Project Definition at Thames Water, Laura Hoang Programme Integration Engineer at BAE SYSTEMS, Zoe Haseman Vice President Global Sustainability at Jacob, Anusha Shah FICE Director at Arcadis)

Link: <https://www.youtube.com/watch?v=UnUYde3Pbe0&feature=youtu.be>

The second webinar on 24 June will feature a practical workshop to follow along at home, helping kids to get motivated with hands-on engineering. **“An engineering experiment about how important shape is in design”** presented by Alexandra Knight Chartered Engineer and Fellow of the ImechE.

Link: <https://www.youtube.com/watch?v=P9yv5gdJgu0>



## Young Member Forum (YMF) Events

### *Get Chartered for Industry (5 February 2020)*



The IChemE Get Chartered event for Industry, organised by the Young Members Forum, was held in “October Gallery event space” near Russel Square on Wednesday 5 February 2020. Almost 40 young professionals from all around the region attended the event.

Heather Black, the Regional Support Executive at IChemE, presented the information about how to get Chartered as well as fielding questions from the audience, providing tailored individual answers. Heather explained in depth each stage of the application process, as well as sharing valuable guidance on how to answer the requirements of the competency report.

### *CHAIN London (28 February 2020)*



CHAIN London 2020 is a joint initiative between the Young Member representatives of six professional engineering organisations, including the YMF. The one-day event was held at the Institute of Mechanical Engineers. The theme of the event was ‘**Engineering the New Decade**’, with a detailed look at how innovations across multiple engineering disciplines could help solve some of the key challenges facing society in the 2020’s and beyond.

A presentation titled ‘**Decarbonisation, Innovation and Energy**’, was delivered by the chartered Chemical Engineer Yasmin Ali, focused on the UK’s major sources of carbon emissions by sector and measures to reduce these emissions. A panel discussion rounded off the talks, with the topic of discussion ‘**If London had to decarbonise fully by the end of the 2020s, what would we need to do?**’, as voted for by the young engineers in attendance.

## Article writing competition ‘How is Chemical Engineering addressing a global issue’

The YMF organised the second version of the article competition. This time they asked to the young members, “How is Chemical Engineering addressing a global issue?” The winners were announced at the online Christmas Lecture on 18 December. The winners of the second article writing competition are:

- **1st Place: Elan Mistry,**
- **2nd Place: Brant Walkley**
- **3rd Place: Eduardo Garciadiego-Ortega.**

The winning entry can be find in this edition of the IChemE LSEC Newsletter.

We would like to acknowledge the contribution of Domenico Macri, Maria Papathanasiou and Roshni Wijesekera assessing all the entries and choosing the winners.



## Young Member Forum (YMF) Events

### Technical Talks

The young members organised three technical talks in a webinar format, due to the COVID-19 situation last year.

#### ***“Using Chemical Engineering in the Paint and Coatings industry to drive sustainability and processing improvements” (4 June 2020)***

### Using Chemical Engineering in the Paint and Coatings industry to drive sustainability and processing improvements

Adam Barnes



Adam is a Chartered Chemical Engineer currently working at AkzoNobel, with 28 years of experience in different fields of the process industry. Adam began his presentation about his career path as a chemical engineer, followed by an introduction to the wide variety of paints and coatings AkzoNobel produce. The talk continued with a discussion on the current challenges in the manufacture of paints and coatings, emphasizing three drivers for performance improvement, namely efficient processing steps; optimal resource productivity; and, layout, internal logistics and planning. Adam completed his presentation by giving some examples of applying these principles followed by a Q&A session.

#### ***“Artificial Intelligence in Chemical Engineering” (9 December 2020)***

Imperial College London

Centre for Process Systems Engineering

## Artificial Intelligence in Chemical Engineering

Antonio del Rio Chanona, Head of the Optimisation and Machine Learning for Process Systems Engineering Group  
[a.del-rio-chanona@imperial.ac.uk](mailto:a.del-rio-chanona@imperial.ac.uk)

IChemE ADVANCING CHEMICAL ENGINEERING WORLDWIDE

@antonioE89

Antonio gave an overview and opportunities of artificial intelligence in chemical and biochemical process industries. He showed, using examples, how data and artificial intelligence can be used in chemical engineering and how it can be applied in different areas like process design and control. Antonio is currently Assistant Professor and director of the Optimisation and Machine Learning for Process Systems Engineering Lab at Imperial College London.

### ***How is Chemical Engineering addressing a global issue***

(By Elan Mistry)

*It is easy to assume that chemical engineering solely focuses on designing, manufacturing and operating plants or developing and synthesising new materials. The right to basic energy, agriculture and housing needs have been facilitated by engineering efforts. However, an issue not typically explored from a chemical engineer's perspective is their impacts on human rights. Chemical engineering is also working towards overcoming human rights encumbered by war and politics.*

*The diamond mining industry is worth approximately 26 billion dollars. The process undertaken to acquire this luxury product is in itself not so glamorous, sometimes using unethical and/or unsustainable practices. Young, oppressed children have been forced to work as miners in African countries such as Sierra Leone and Ivory Coast unwittingly fuelling an insurgency. Despite more modern practices and bans on blood diamonds, approximately 140,000 carats of conflict diamonds are still infiltrating the market. The diamond trade is still fuelling human suffering. Alongside this, the environmental impact via the excavation of diamonds results in more than 108 kg of carbon dioxide emissions for a one-carat stone. Likewise, large, empty craters like the Mir mine in Siberia or the Bunder Diamond Mine in India are left abandoned after near exhaustion.*

*Chemical engineering is helping to solve these two issues with a single solution: CO<sub>2</sub> capture and conversion. Artificially synthesised diamonds enables circumvention of large mines and thus has the potential to be carbon negative if renewable resources are employed.*

## Young Member Forum (YMF) Events

### ***“Piper Alpha and other accidents I have investigated” (18th December 2020)***



Professor Stephen Richardson has investigated a number of accidents, most notably Piper Alpha, for which he was a member of the Public Inquiry under Lord Cullen, and also Umm Said, Ocean Odyssey, Longford, P36 Roncador and several others. In this talk, He mentioned some key features of the Piper Alpha accident, in which 167 men tragically died. Specifically, He described the chronology of the accident and what went wrong, why it had such disastrous consequences and what lessons can (still) be learned.

### ***University activities***

At the beginning of last year, the YMF had the opportunity to introduce the members group to undergrad students of LSBU and UCL at the LSBU careers and UCL IEP minors: drinks with industry events respectively, both events took place on March 2020.

On the second half of the year, the YMF introduced the group to ChemEng postgraduate's students and researchers of the Imperial College London at the ICL spotlight online event in July.

## University News

### ***Careers Event, LSBU (07 October 2020)***

As part of a much wider event, IChemE representatives had the opportunity to talk to students about the world of work, some of the key career decisions ahead, and the role that the IChemE might play in their future.

### ***OnCampus, LSBU (22 October 2020)***

Building on our well-received three-hander presentation of last year, we introduced LSBU first-year students to the idea of profession engineering institutions, the IChemE in particular, and how they could get involved immediately via contact with the Young Members Forum.

*It also allows manufacturers to carefully control the chemical composition and the size of the diamonds they want to make. Regions previously fuelled by the trade of blood diamonds could potentially benefit by developing these artificial diamond facilities instead of mines. Lastly, synthesising diamonds artificially inspires new hope for the diamond industry, including environmental benefits and hopefully extinguishing slave trading and forced labour.*

## Poster competition

On June 2020, the YMF organized their first Twitter poster competition. The competition had two categories: undergrads and postgrads. To participate, the members just needed to post an image on twitter highlighting their own research for postgrads or anything related to chemical engineering for undergrads, e.g. explaining an accident in process safety, a chemical engineering process or a chemical engineering concept.

The winners of this competition were:

- Postgraduate:

**Seng Hoe (Billy) Hue** from UCL, with the poster titled ***“An elastic solution to the fluid world - how to efficiently remove stagnant fluids in small channels”***

- Undergraduate:

**Usaamah Ougradar**, with the poster titled ***“The Bhopal disaster- A case Study”***.



## New Start up



The committee is planning an event in early 2021 where 3 chemical-engineering-related start-ups will be invited to share their journeys with our members who are interested in the commercialisation of brilliant ideas.

One of the start-up that will contribute to the event is **Octeract** (<https://octeract.com>), founded by Dr Nikos Kazazakis and Dr Gabriel Lau in 2017 to provide optimisation software. The main product is the Octeract Engine, a parallel mixed integer nonlinear programming (MINLP) solver that has been tested by Prof. Hans Mittelmann of Arizona State University.

Through its **Hyperoptimisation Community Project**, Octeract provides its solver and automatic reformulation tools free of charge, for academic and commercial purposes alike. When users run Octeract Engine Community edition, they essentially become part of a supercomputer network that analyses mathematics and solving information. Octeract Hyperoptimisation algorithms use that data server-side to organically improve algorithmic performance over time, and these improvements are automatically delivered to users in real-time.

***'If you know a chemical-engineering-related start-up that we should invite, please kindly contact our commercial engagement coordinator, Dr Wenqian Chen (or simply "Wen") at [wengqian.chen06@imperial.ac.uk](mailto:wengqian.chen06@imperial.ac.uk)***

## 2021 Events!

### LOPA & COVID-19

LOPA (layer of protection analysis) enables evaluation of the relative probabilities of virus transmission.

### Low-carbon London: TfL waste heat recovery from tube tunnels

We are in discussions with TfL about a follow-up to the sell-out Road to Zero-carbon Transport event. One topic being considered is their plans for heat recovery from the deep-level tube tunnels.

### Mental health - including the impact of COVID-19 (stress, fatigue, absenteeism)

Let's talk about mental health and safety - applying successful safety techniques for preventing physical injury to prevent mental damage

### Chemical engineering start-ups.

The event will take place from 6 to 8 pm the 31<sup>st</sup> March 2021 (Wednesday) via MS Teams/Zoom. Anticipated participants include start-up founders, investors and experts on government grants for start-up/SMEs. The event is open to all IChemE member who are interested in the translation of technology/knowledge into tangible positive impacts. More information will be released in February 2021.

## Monthly committee meeting Calendar 2021

### MAIN COMMITTEE

27 January 2021

24 February 2021

### AGM 24 March 2021

28 April 2021

26 May 2021

30 June 2021

08 September 2021

06 October 2021

03 November 2021

***Our meetings and AGM will take place on-line until July 2021***

## Get in touch!



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