

## Pressure Systems Group Newsletter: Looking back on 2024 and looking ahead to 2025

### Chair's Introduction

Welcome to the Pressure Systems Group annual newsletter! The [Pressure Systems Group](#) (PSG) is one of the 18 [Divisions and Groups](#) that make up the committee structure within the [Institution of Mechanical Engineers](#) (IMechE). The PSG is headed by the PSG Board, which comprises 25 members covering all aspects of pressure systems technology, and is there to represent the interests of anyone working or interested in pressure systems technology, policy, or research.

The aim of PSG is to bring the whole pressure systems industry together and share knowledge and advancements in technology. The PSG is now building on successes from the last few years, and it is a real pleasure to see new initiatives starting in several different areas.

Some highlights for PSG over the last year include:

- We now have a dedicated representative for Additive Manufacturing on the PSG Board.
- We're strengthening our links with the [American Society of Mechanical Engineers \(ASME\) UK](#) International Working Group, hoping to create a permanent liaison between the PSG and the ASME UK IWG in 2025.
- We're hosting the [15<sup>th</sup> International Conference on Pressure Vessel Technology \(ICPVT\)](#) in 2025.
- We've added an "invited speaker" slot to our standing agenda for PSG Board Meetings.
- Partner organisations for our events in 2024 included the [PVMf](#), [BCGA](#) and [TSA](#).
- Event sponsors in 2024 included [Axiom](#), [Flexitallic](#), [LRQA](#), [SSE Thermal](#) and [TUV Rheinland](#).
- We're continuing to work on an initiative on Nuclear Pressure Systems.

The PSG Board meets in February, June, September and December each year. In 2025 we will likely have two online meetings, and two face-to-face. If you'd like to host a meeting of the PSG Board, please get in touch using the details at the end of the newsletter.

In this newsletter, we'll look at the highlights of 2024, and take a look at what is in store for 2025.

Dr Paul Smith, FIMechE

Chair, Pressure Systems Group

## Looking Back on 2024

### Remembering John Darlaston

PSG was saddened to hear of the passing of John Darlaston in 2024, and we will be forever indebted to him for the huge contribution he made to the PSG. John's Chairmanship of the PSG Board was legendary, and under his leadership he inspired and developed the PSG to achieve and maintain a reputation as one of the most active and successful of the IMechE's Technical Groups.

He organised many seminars, conferences and workshops, providing thousands of engineers and technologists involved in the design, manufacture and operation and inspection of pressure systems with the latest state-of-the-art information. He was always keen to impart his knowledge and share learning with all, and this ethos is indelibly imprinted on all PSG events and seminars to this day.

John's chairmanship saw many notable technical developments, including advances in design methods, fatigue assessment rules, the widespread use of modern ultrasonic inspection techniques, fitness-for-service assessment and risk-based inspection.

He did so much to spot and encourage new talent in engineering, inviting younger engineers onto projects and committees, giving them responsibility, but always there to offer a piece of wisdom or a helping hand.

With his passing we lose a great friend and mentor.



## **Seminar Report – Bolted Joints: the End-to-End Lifecycle**

PSG kicked off the 2024 technical programme with an excellent one-day seminar on the topic of *"Bolted Joints: the End-to-End Lifecycle"*.

The seminar was held at the home of Newcastle United Football Club, St James' Park, which is an excellent venue for events and seminars, and one that PSG has used previously.

The presentations were all top-notch and covered topics including regulations, design, flanges and gaskets, and case studies from owner/operators. Over 70 people joined us on the day and the level of audience participation was great to see, simultaneously engaging and challenging the speakers.

Logistics-wise, the venue was excellent - particular thanks go to the IMechE team, Liv and Robin (pictured) for producing what was such a great day for the PSG.

For more information, see the event page on the IMechE website here [Bolted Joints: The End-To-End Lifecycle | Newcastle Upon Tyne](#)



## **Seminar Report – Fit for Service Pressure Systems for the Energy Transition**

The second PSG seminar of 2024 was a one-day event at the Technology Innovation Centre (TIC) in Glasgow in October. The event covered “*Fit-For-Service Pressure Systems for the Energy Transition*”, and was co-located with another IMechE event on “*Engineering Challenges in Carbon Capture, Transport, and Storage*”. Having two events side-by-side enabled shared networking for the 100-strong delegation, and represented great value for those attending.

This topic was a new event for PSG, and was a great success. The day started with a shared plenary session for both events and then each event split into parallel sessions. The speaker line -up was of the highest calibre and the day was a great opportunity for knowledge exchange on this important issue facing the pressure systems community.

### **[Fit-for-service Pressure Systems for the Energy Transition](#)**

#### **Donald Julius Groen Prize**

PSG awarded [David Nash](#), Professor of Engineering at Strathclyde University, the Donald Julius Groen prize at the December 2024 meeting. Congratulations, David!

David’s contribution to the pressure systems community is unrivalled. He has delivered the Strathclyde courses on pressure systems to over 1000 engineers, and has provided knowledge transfer to so many more, for decades now.

As with all the DJG prize winners, David is a worthy recipient. David retired from the PSG Board last year, but came to London to receive the prize during the December meeting of the PSG Board. He joined us for Christmas lunch at the IMechE HQ in Westminster.

David’s acceptance speech included presenting a “*quaich*”, the Scottish cup of friendship, to Simon Earland in recognition of the work they have done together over the years presenting the Strathclyde training courses on pressure systems.

The nominees for the DJG prize are all considered by the PSG Board early each year, with the winner being determined through a vote. The prize is awarded for outstanding papers or for outstanding achievements in the sphere of activity of the PSG. We would be happy to receive any nominations by 18 March 2025.



### **Invited Speaker - ToffeeX**

The agenda for the PSG Board meetings has been augmented by the addition of an “invited speaker” slot. Charlie Kelly and Thomas Rees of ToffeeX came to the meeting in London in December and gave an overview of an exciting new technology being developed by their company related to optimisation of heat exchanger layout and design.

The presentation outlined the basis and future vision for the product and was followed by a question and answer session from the PSG Board. Issues such as “*design for manufacturability*” and “*incorporating stress analysis into the technology*” were discussed. It was an engaging session and gave ToffeeX good exposure to a new range of stakeholders. See the ToffeeX website at [Physics-Driven Generative Design Software | ToffeeX](#)

If you would like to present your work or your company to the PSG Board in the invited speaker slot, please get in touch via the details at the end of this newsletter.

### **A Trip Down Memory Lane**

PSG has been digging into the archives! Thanks to Edward Anderson for sharing the photo below of the PSG Board from 2007.



And here is the PSG Board at the 2024 December meeting and Christmas Lunch. Good to see some familiar faces still attending PSG Board meetings! Many thanks to all who come to the meetings and make PSG such a great place to exchange knowledge and best practice.



## **Looking forward to 2025**

### **International Conference on Pressure Vessel Technology**

In September 2025, the world's eminent pressure systems community will meet in Glasgow for the 15<sup>th</sup> edition of the International Conference on Pressure Vessel Technology (ICPVT-15).

This is a long-running event that started in the 1970s. It has been held in many different locations including Sydney, Delft, and Dusseldorf. Unfortunately, the event planned for early 2025 in Perth was cancelled, and PSG has taken the reins for planning and producing the event.

The event has a long standing technical programme, and is unique in that it will be an optimal combination of written papers, curated technical presentations, and invited guest speakers.

The call for papers is open and the tracks for technical topics include:

- Updates to regulations and industry guidance
- Design and integrity assessment of pressure equipment
- Developments in international pressure equipment codes and standards
- Manufacture, fabrication, and installation of assemblies
- Developments in materials
- 3<sup>rd</sup> party inspection, certification, and conformity assessment
- Non-destructive testing and examination
- In-service management and life extension of pressure equipment
- Industry 4.0, condition monitoring techniques, and digital twins
- Case studies of international projects and lessons learned

Written papers will be published in a special edition of a peer-reviewed IMechE journal following the conference. This is your chance to become a published author!

ICPVT is very much a social event too – we will be putting on receptions and dinners to maximise the opportunities for networking. The delegation is truly international and promises to attract the finest minds associated with pressure systems.

John Darlaston supported many editions of ICPVT, and he was instrumental in its success. PSG is keen to continue this initiative and we are planning to host ICPVT-15 in his honour.

See the following link for more details of the conference [International Conference on Pressure Vessel Technology - ICPVT15](#).

ICPVT-15 promises to be the big one for 2025 – don't miss out!

## **Nuclear Pressure Systems Industry Survey 2025**

As reported in the last edition of the PSG Newsletter, we are (still) working on an industry-wide survey and summary report covering best practice in the management of all aspects of Nuclear Pressure Systems.

The survey questions have been finalised and covers topics including regulatory compliance, and linkage to the Licensee's nuclear safety case.

The first round of target respondents will be invited directly. However, if you would like to be a part of this initiative don't hesitate to get in touch.

The completed survey will form the basis and input to a technical report being authored by PSG with input from EDF and LRQA. The report will cover the key issues associated with Nuclear Pressure Systems and draw together a number of complex and interacting topics.

All being well, PSG aims to complete the report and survey and launch the works at a seminar in 2025, where delegates will be able to discuss and exchange ideas on this important topic.

## **Member Updates for 2025**

David Hardacre of Hardacre Solutions has taken up a position of *"Additive Manufacturing Representative"* on the PSG Board. David brings a wealth of expertise in this area and regularly provides updates and reports on new additive manufacturing techniques, and qualification of additively manufactured pressure equipment.

Simon Emeny of LRQA (one of the Vice Chairs of the PSG Board), has recently been elected as Vice Chair of the IMechE Technical Strategy Board (TSB). This is a great appointment for the IMechE, and we wish Simon all the best for this exciting new role.

## **Getting Involved in 2025**

If you've got an idea for a PSG event, would like to speak at a PSG event in 2025, want to host a meeting of the PSG Board, or just want to get involved in PSG more generally, please don't hesitate to contact us or post a message on our LinkedIn page.

Webpage: <https://www.imeche.org/industry-sectors/pressure-systems/>

LinkedIn Group: <https://www.linkedin.com/groups/4796016/>

Email address: [membersnetworks@imeche.org](mailto:membersnetworks@imeche.org)

If you'd like to join the PSG Board, CVs are accepted for membership, and are considered and voted on throughout the year. We will normally also ask for a covering letter explaining why you want to join, what you will bring and what initiatives related to pressure systems you would be interested in leading on.

## **Final Words**

We have had a very successful year, and all at the IMechE PSG are truly grateful for the continued support given to us by everyone in the pressure systems community. It is fantastic to see so many friends of PSG returning to our events and seminars, and also to meet new people coming to PSG events for the first time.

I am sure the future will bring even more opportunities for networking and knowledge exchange, and I look forward to seeing as many of you as possible at [ICPVT-15 in September 2025](#).