

## **NATIONAL WOMEN IN ENGINEERING DAY – 23 JUNE 2014 - REPORT**

The University of Manchester celebrated the first ever National Women in Engineering Day (NWED) by highlighting some inspirational women who are standing out from the crowd and promoting their profession.

This inaugural day was realised by the Women's Engineering Society in celebration of their 95th anniversary as a charity supporting women in engineering. It has been recognised that a skills gap in engineering is looming, and one way of addressing this is to inspire women and encourage them to consider engineering as a realistic career option.

The Faculty of Engineering and Physical Sciences celebrated the day with an event organised by the University's Athena SWAN Coordinator at the Concorde Hangar in Manchester Airport. The keynote was led by Dr Danielle George, Reader and Associate Dean for Teaching and Learning (EEE) University of Manchester, with contributions being given from 20 leading women in the field from academia and industry including Unilever, BP, Amey, Cargill, Atkins, Mexichem and AkzoNobel. There was a structured networking session and a technical tour of Concorde. The event was kindly sponsored by IBM, the Teaching and Learning Support Office at the University and WiSET (Women in Science, Engineering and Technology) and was attended by 25 delegates from the University – including postgraduates, undergraduates and research staff.



**Figure 1** Photo of all part taking in event in front of the Concorde aircraft

## OUR CONTRIBUTORS

- Each of the contributors presented to an audience of undergraduate & postgraduate women. They gave an introduction, position at institution and any key information they wished to share. For example how long been in their position, relevant experience/background (degree), if have caring responsibilities, if gained promotion/changed roles at their institution, what they love about being a woman in STEM, challenges that they overcame and concluding with inspirational advice.

## KEYNOTE ADDRESS – DR DANIELLE GEORGE, READER, SCHOOL OF ELECTRICAL AND ELECTRONIC ENGINEERING, AND ASSOCIATE DEAN FOR TEACHING AND LEARNING



Figure 2 Dr Danielle George

Inspirational role-model talk about research and journey in academia, discussing challenges faced and offering hints/tips on how to be a successful woman in STEM.

Danielle also highlighted Athena SWAN, The Charter for Women in Science, and the recently signed Women in Technology and Engineering Call to Action Compact Pledge explaining what these initiatives meant for our staff/students in our University and the commitment to actions made to support a change in culture.

**Read more about Danielle and her research here:**

<http://www.eee.manchester.ac.uk/people/staff-spotlights/danielle-george/>

## INDUSTRIALISTS, CONSULTANTS AND EXTERNAL STAKEHOLDERS

- Sarah Beck, Civil Engineer, **Amey**
- Lynnette Bowen, Global Sales & Marketing Manager, Lubricants & Fuels, **AkzoNobel**
- Aline Connor, Architectural Technologist, **Atkins**
- Cara Cronshaw, Industrial Chemist, **Mexichem**
- Tricia Francis, International Trade Associate, **UK Trade and Investment (Northwest)**
- Alys Gardner, Nuclear Safety Consultant, **Atkins**
- Sarah Galbraith, Director, **The Galbraith Muir Consultancy**
- Jacquelyn Guderley, Manager, **Stemette**
- Kirsty Harrison, Refinery Supervisor, **Cargill**
- Vicky Riding, Research Scientist, **Unilever**
- Fiona Smith, Senior Process Engineer, **Mexichem**
- Elizabeth Stokes, Corporate Sustainability Manager, **AkzoNobel**
- Gabriella Thomas, Wellsite Drilling Engineer, **BP**

## UNIVERSITY ACADEMICS

- Megan Jobson, Senior Lecturer (CEAS), **UoM**
- Therese Lawlor-Wright, Lecturer (MACE) & WES Fellow, **UoM**
- Aline Miller, Professor (CEAS), **UoM**
- Flor Siperstein, Reader (CEAS), **UoM**

## UNIVERSITY SUPPORTING OFFICERS

- Catherine Lillie, EPS Researcher Development Officer, **UoM**
- Samantha Winder, Business Engagement Officer, **UoM**

## CASE STUDIES

### DR THERESE LAWLOR-WRIGHT, LECTURER, SCHOOL OF MECHANICAL, AEROSPACE AND CIVIL ENGINEERING, AND FELLOW FOR THE WOMEN ENGINEERING SOCIETY



Figure 3 Dr Therese Lawlor-Wright

Therese is a mid-career academic. She is married with two grown-up children. Therese has had experience of part-time and flexible working and previously worked in manufacturing industry and consultancy.

Therese recognises the importance of encouraging women to pursue of science, engineering and technology and believes as engineers, we need to step out from the darkness and shed light on our profession by communicating more what we do.

**See Therese's blog from the day here:**

<http://thereselawlorwright.wordpress.com/2014/06/29/the-dark-side-of-engineering-national-women-in-engineering-day-2014/>

### SARAH BECK, CIVIL ENGINEER, AMEY



Figure 4 Sarah Beck in her PPE

Sarah studied Civil Engineering at the University of Liverpool and completed 3 industrial placements. Her first two industrial placements were in the consulting environment working for Mott MacDonald's highways team working on various designs for roads, junctions and car parks. Her third industrial placement was with the Highways Agency where she gained site experience working on a resurfacing and carriageway drainage scheme on the M60 and the replacement of the Bowdon View Bridge deck over the M56.

Sarah strongly encourages all students to undertake industry placements as she gained a lot of valuable experience during this time which helped her secure a graduate job during the recession when a lot of others were struggling.

Sarah graduated from the University of Liverpool in 2011 with a Civil Engineering BEng (Hons) degree and started working for Amey on their Graduate Pathways Program in January 2012. She began working on the Civil Examinations Framework Agreement which is an asset management contract for Network Rail. Having never worked on the railway before so it was a new challenge for her. Since starting her career at Amey Sarah has been given increased responsibility from conducting inspections under the mentorship of others to planning the inspections and taking the role of site team leader. All graduates joining Amey are supported whilst perusing their

professional qualifications and this was a big draw for me when choosing a graduate job; Sarah has recently signed off her training agreement which allows her to sit the Incorporated Engineer review with the Institution of Civil Engineers (ICE).

During the last two years Sarah has become more involved with the ICE and has been the Chair of the Graduates and Students Committee for the North West region (2013-2014). As part of this role she gets to meet many engineering role models including the President of the ICE on his visit to the region. She has also recently launched the ICE Equality and Diversity group in the North West with some of my colleagues from the ICE Committees, and they are getting a lot of support for this group not only from our region but nationally.

***Sarah's quote:***

I believe the National Women in Engineering Day this year was a great success and gave a lot of focus to an area which tends to get overlooked. The students from Manchester University that I had the chance to speak to seemed to enjoy the day and felt a lot more confident about their career prospects at the end of it. All the different branches of engineering have their own institutions and I would highly recommend getting involved as much as possible, I have found the phrase 'you get out what you put in' to be very true in this case.

**Gabriella Thomas, Wellsite Drilling Engineer (Offshore rotation), BP**

Gabriella graduated from The University of Manchester in 2013 with a Chemical Engineering with Industrial Experience (MEng with Hons) degree. Whilst at university Gabriella volunteered for a number of projects and was awarded her Manchester Leadership Gold award. Gabriella has gained a breadth of experience in research projects, chemical manufacturing, crude oil refining and exploration operations prior to graduation. Upon graduation she has taken a place as a Wells engineer in BP's Global Wells Organization.

As a part of BP's graduate programme Gabriella's first position has been that of a Wellsite drilling engineer. This entails a year of offshore experience where she has gained an operational outlook



**Figure 5 Gabriella Thomas presenting on the day**

on how BP engineering plans are executed offshore. Alongside this she has also been assigned engineering projects too, this has supported her growth by putting her experiences into perspective. Gabriella's development on both a personal and professional skills within the organization has been furthered by mentors, of whom she is very appreciative for their guidance.

Gabriella's next role will be based onshore, where she will move into a completion engineer's role. The

completion engineer's primary objective is to take into account the long term changes of the reservoir (e.g. temperature & pressure) and design the downhole interface to reservoir and the tubing this connects to the surface equipment, all of which must be economically viable for the life of the well. There are other areas within & relating to Wells other than completion engineering; these include drilling, interventions, decommissioning and subsea engineering.

***Gabriella's quote:***

It has been a great privilege to be a part of the first ever National Women in Engineering Day and even more so to share my experiences with the engineering community of my alma mater, the University of Manchester. I hope that this event has highlighted the engineering talent within the UK and that I'd like to thank you for the opportunity to present at this event.

**National Women in Engineering Day Stats**

- 7% of the engineering workforce is female.
- 17% of engineering students are female.
- 3.4% of Engineering and Manufacturing Apprentices are female
- The UK needs to double the number of recruits into engineering to meet demand. Industry simply needs more people and whilst appointments are always made on merit if we only look at half the population (i.e. the boys) to fill the gaps you're definitely missing a trick!
- Companies with more women on their boards were found to outperform their rivals with a 42% higher return in sales, 66% higher return on invested capital and 53% higher return on equity.

**In the Faculty of Engineering and Physical Sciences (9 Schools) at The University of Manchester we have:**

- 30% Female Undergraduate Students,
- 35% Female Postgraduate Taught Students,
- 28% Female Postgraduate Research Students,
- 24% Female Research Staff
- 26% Female Lecturers,
- 18% Female Senior Lecturers/Readers
- 8% Female Professors

**In our Engineering Schools, CEAS (Chemical Engineering and Analytical Science), EEE (Electrical and Electronic Engineering), and MACE (Mechanical, Aerospace and Civil Engineering) we currently (as of June 2014) have:**

- 18% Female Undergraduate Students,
- 30% Female Postgraduate Taught Students,
- 21% Female Postgraduate Research Students,
- 24% Female Research Staff
- 21% Female Lecturers,
- 13% Female Senior Lecturers/Readers
- 5% Female Professors