



*Corresponding author: Eileen Harkin-Jones, Bombardier-Royal Academy of Engineering Chair in Composites Engineering, Ulster University, Newtownabbey BT37 0QB
E-mail: e.harkin-jones@ulster.ac.uk

Additional information is available at the end of the article

Figure 1. Eileen Harkin-Jones

MATERIALS ENGINEERING | EDITORIAL

Women into Engineering: An interview with Eileen Harkin-Jones

Eileen Harkin-Jones^{1*}

1. *What made you decide to be an engineer?*



I have been interested in solving problems of any sort from an early age and I have always loved a challenge. To me, engineering is about solving problems and overcoming challenges, so it was an ideal career for my interests.

2. *Could you tell us about what your work as Bombardier-Royal Academy of Engineering Chair involves?*

I work closely with industry to solve problems relating to the processing and properties of polymer and composite materials. An example of this is the development of new materials for additive manufacturing to allow much faster production of parts. A second example is in the development of new high performance, thermoplastic composites for aerospace applications using nanoparticles such as graphene.

3. *What do you enjoy most about researching plastics processing and materials, or working in engineering more broadly?*

The range and diversity of problems to be solved makes the work both interesting and extremely challenging. Currently I am working on material and process development for applications ranging from aerospace to medical devices. In one case you are trying to reduce the environmental impact of transportation and in the other you are tackling issues that will improve the quality of life for patients.

4. *Who or what inspires you?*

The natural world is a huge inspiration. Being able to understand and replicate some of the materials and systems that exist in nature would enormously enhance our engineering systems and materials.

5. *As Advisory Editor for Cogent Engineering, and having published over 150 papers, how well supported is female-led research in engineering?*

I would say that depends entirely on the institution in which you work. Initiatives such as Athena SWAN (www.ecu.ac.uk/equality-charters/athena-swan) have done much to improve the working environment for female academics but there is still much to do.

Figure 2. 2005 WISE Ambassador Award



6. Your work in promoting gender equality in STEM subjects includes acting as Athena SWAN coordinator for the school of engineering at Ulster University. What prompted your interest in the Athena SWAN charter?

My interest stems from a desire to have a level playing field for females in academia and further afield. The smallest of changes can have very positive influences on well being and job satisfaction. It is just a matter of recognising the changes that are required and implementing those changes in a timely manner.

7. You hold a number of high profile roles in engineering, including Chair of the Royal Academy of Engineering Materials & Mining membership committee. What has been the main motivator of your success throughout your career?

I set high standards for myself in terms of performance and I like to apply those standards to any job, be it chairing a committee or delivering a STEM talk to primary school children.

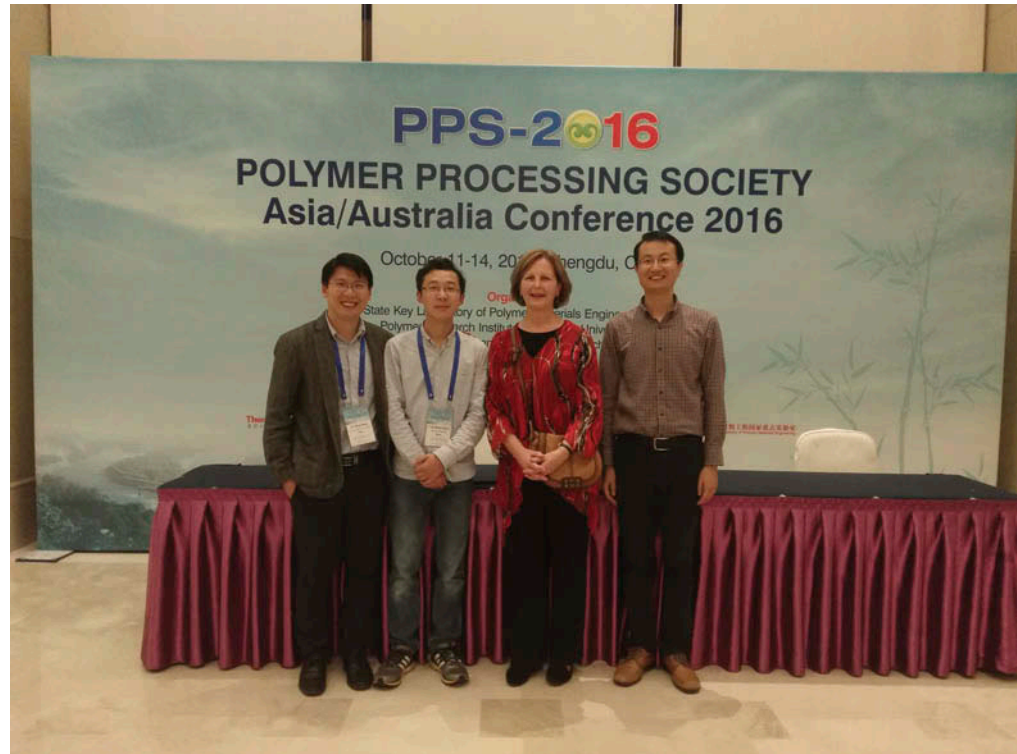
8. When working or researching in engineering, have you noticed a gender imbalance? How has it affected you?

There is a well-documented gender imbalance in engineering. I would say that one of the most challenging consequences of this it that it can be quite lonely at times. It also means that the majority of working practices existing in engineering have had little contribution from women so some of the factors leading to imbalances persist.

9. As a woman in engineering, have you ever had to overcome any gender barriers? What do you think is the reason for these barriers existing?

I think barriers exist because women have had so little input to the way in which we work in engineering. This includes areas such as promotions and progression criteria and in working practices (long hours culture and inflexible working arrangements).

Figure 3. At a Polymer Processing Society Conference in Chengdu, China



10. Why do you think engineering is often perceived as a “male” occupation or area of interest?

Engineering is gendered as a predominantly male occupation in practically all media from pre-school cartoons to TV news. It is still portrayed as an “oily rag” profession in most TV or newspaper reporting.

11. The conversation around women in STEM subjects, engineering in particular, has been ongoing for some time. What more, in addition to existing initiatives, needs to be done in order to address the balance of women and men in engineering?

We need to start at the very earliest stage in education to address the issue of how girls develop negative perceptions of their abilities in subjects such as maths. It has been demonstrated that these negative perceptions develop between the ages of four and six so our interventions need to start then. There is also a need to show children what engineering is really about at this early stage. Leaving it to later in primary school or secondary school is far too late.

12. How can information about how to get into engineering be made more available to young women?

Integrate it into initial teacher training and into the early years primary school curriculum.

13. Do you have any advice for young women starting out in engineering?

Stick with it and always challenge the way in which things are done, both in an engineering context and in workplace practices.

Author details

Eileen Harkin-Jones¹
E-mail: e.harkin-jones@ulster.ac.uk
ORCID ID: <http://orcid.org/0000-0001-5901-4624>
¹ Bombardier-Royal Academy of Engineering Chair in Composites Engineering, Ulster University, Newtownabbey.

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