SAMPE UK and Ireland Chapter

Reports from the Recipients of Student Travel Grants

Award No 1 **SAMPE Europe Conference, 2016 Liege: 13 to 15 September, 2016**

Agnieszka Suliga

I am writing to you to report on my trip in fulfilment of the awarded research student travel grant. I attended and presented my work "***Ultra-thin hybrid organic-inorganic deployable CFRP structures with improved resistance to UV in the space environment***" at **SAMPE Europe '16** held in Liege, Belgium, September 2016.

For an early-stage researcher like myself, attending a conference is an opportunity to network and get an exposure from possible employers or collaborators. The SAMPE EUROPE conference in Liege was my very first conference and it proved a very pleasant experience.

Attending one of the leading conferences on advanced materials and processing in Europe gave me an idea about the amount and quality of an ongoing research within my field. It helped me to evaluate the quality and importance of my own research and get an invaluable feedback.

Many agencies and institutions established close ties with Belgium. During the conference, we had an opportunity to visit the conference commercial partners. I chose a visit in the Centre Spacial de Liege and Coexpair where I learned about Belgian's contribution to space exploration and manufacturing of large CFRP parts.

The conference hosted experts from various related disciplines, however, the most interesting sessions for me were the ones related to new material development and composites for space applications. I was positively surprised with the amount and quality of research within my field and moreover I was ensured that my work is important and critical for development of functional CFRP space structures.

Thank you very much for your generous support, it is hugely appreciated.

Miss Agnieszka Suliga

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Award No 2 **SAMPE Europe Conference, 2016 Liege: 13 to 15 September, 2016**

Fanran Meng

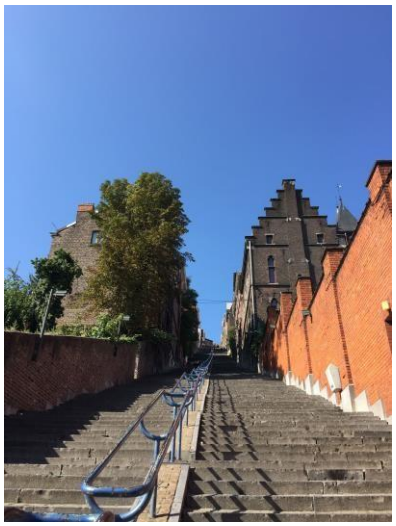
SAMPE Europe is the European branch of the Society for Advancement of Materials and Process Engineering. SAMPE Europe organizes yearly 2 key events for composite designers and developers: A Summit meeting preceding the JEC show and a Technical Conference and Exhibit mid-September. The conference program consists of a broad range of lectures in the advanced materials application fields, mainly composites, light metals and hybrids. Main markets covered are aerospace, automotive, wind and solar energy, architecture, and construction. Companies involved are presenting their skills in the exhibition area. Location is the Palais des Congrès in Liege.

This conference was a great experience and a learning journey of the development status of composites in the industry. The first afternoon ended with 5 parallel industrial tours and I attended the tour of Centre Spatial de Liège (CSL) & Coexpair. CSL is an applied Research Centre owned by the University of Liège, focused on design, integration, and calibration of space observation instruments. It also operated a highly specialized environmental test centre to support ESA program as well as space industry and regional companies. CSL has participated in several renowned space missions such as SOHO-EIT, XMM, COROT, HERSCHEL, PLANCK, JUNO, etc. Coepair, a sponsor of the conference, mainly supplies production equipment and engineering solutions for manufacturing of composite parts at lower cost with improved quality. It is focused on matched tool processes (RTM & SQRTM), leading SQRTM process development, and working in close partnership with Radius Engineering.

I gave a presentation entitled environmental aspects of recycled carbon fibre composite products. It was an investigation of environmental impacts of the fluidised bed composite recycling process and further processing method for recovered carbon fibre (CF), which has been developed at the University of Nottingham. Life cycle assessment (LCA) models are developed to quantify the environmental impactsof recovering CF and using as a substitute for virgin CF, making use of data from manufacturers and existing LCA databases. The manufacture of a CFRP using both virgin and recovered CF, via wet-lay non-woven mat process followed by compression moulding or injection moulding routes, is considered. Energy usage in these processing routes is modelled based on the process parameters, and the energy data are used for LCA analysis.

The presentation was well received and generated some questions from audience members about fluidised bed recycling process and environmental impacts.During the conference, I met several experts and students in composites recycling and life cycle assessment fields from Netherlands, Germany, Belgium, and UK. This gave me opportunities to communicate my research and exchange details with them for possible future collaborations. This was already my 4th conference presentations at my final stage of PhD study. So, I would like to especially

acknowledge the travel grant from SAMPE UK & Ireland Chapter to allow my presence for this conference. Also, I would like to acknowledge the supervision from Prof. Steve Pickering and Dr. Jon Mckechnie for their time and experts to support my research.





In addition, I got opportunities to visit the Liege city and tried to experience part of the culture. The conference was held at Palais des Congrès aside the Meuse River where you can have a view of this major European river rising in France and flowing through Liege in Belgium and the Netherlands before draining into the North Sea. There was also Stairs of Mount Bueren which has 374-step stairways to a Montagne de Bueren. The stairs were built in World War II for delivering wound soldiers. At the top of the mountain, there was a good view of the whole city which was amazing

Fanran Meng

University of Nottingham

Award 3: 13th Conference in Flow Processes for Composites Materials; Kyoto, Japan

Ffion A. Martin

The international conference in flow processes for composite materials is a setting for presenting progress in the field of composite materials manufacturing and provides a forum for discussion between academia and industry. Researchers from all over the globe attend the conference and 2016 is the first year that the conference was held in Asia.

The conference comprised several themes including Numerical Methods, Permeability, and Process Monitoring. Professor Steven R. Nutt from the University of Southern California, Professor Naoki Takano from Keio University and Professor Francisco Chinstrap from Ecole Central de Nantes gave plenary lectures, at the beginning of each day of the three-day conference.

I presented my work titled 'Manufacturing with High Pressure Resin Transfer Moulding' in the final session of the conference on the last day. The presentation showed the flow simulation approach developed during my secondment working with Pavel Simacek and Professor Suresh Advani at the Centre for Composites Manufacture at the University of Delaware earlier this year. The feedback I collected was that the presentation was well received. There was not much time for questions in the session but I took numerous questions in the break after the session. I exchanged details with interested parties, expanding my network.

During the conference a braiding workshop was held demonstrating how Japanese craft braiding has been converted into an industrial process using glass fibre. I was also able to attend the conference dinner at a venue in the old town of Kyoto, I enjoyed the Japanese food served at the dinner and throughout the conference. There was also an excursion on the Saturday which I attended before returning to the UK.

The travel grant from SAMPE allowed me to attend a dedicated conference with specific relevance to my research and it was a great pleasure to attend. I acknowledge the support which facilitated the research presented; EPSRC support of the Industrial Doctorate Centre in Composites Manufacture (EP/K50323X), industrial support from Jaguar Land Rover JLR, contribution of flow simulation software and support from the University of Delaware and use of equipment and facilities at the National Composites Centre UK.

Photos left to right: Braiding workshop, view at the conference dinner venue, activity (Japanese sweet making)

on the conference excursion, Japanese lunch at the conference

Ffion Martin

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