Briefing: The future of construction materials research

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Briefing: The future of construction materials research

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This briefing paper describes the second Young Researchers’ Forum in Construction Materials, which took place on 19 February 2014. The event provided an opportunity for young researchers to meet and communicate, and showcased the variety and diversity of current research into construction materials and materials technology – ranging from the mainstream, well-researched materials to less conventional alternatives. Six sessions were provided for delegates from both industry and academia. Prizes were awarded to recognise the best presentations from young researchers.

Journals such as Construction Materials continue to demonstrate the variety and diversity of ongoing research into materials technology, covering a variety of disciplines, scales and approaches. The second Young Researchers’ Forum in Construction Materials, held on 19 February 2014, similarly showcased the continued enthusiasm and variety in construction materials research (Figure 1). The aim of this forum was to provide an opportunity to speak to a friendly audience of young researchers (research students and those recently appointed in industry), and to raise the level of contact and communication between people in the early stages of their careers, from both industry and academia. In addition, the event also provided an opportunity to learn more about the organisations hosting the event and their wider roles in research and industry.

The forum was organised by the Institute of Concrete Technology (ICT) on behalf of a consortium representing the Institute of Materials, Minerals and Mining (IOM3), the Construction Materials Group of the Society of Chemical Industry (SCI), the Institute of Asphalt Technology, the Mineralogical Society, Loughborough University and University College London (UCL), and was held at the Department of Civil, Environmental and Geomatic Engineering at UCL. More than 70 participants attended, and 14 papers were presented by researchers from Italy, the Netherlands, Poland, Spain and the UK (Figure 2). The event was opened by Professor Anthony Finkelstein, Dean of Engineering Sciences at UCL, and was then introduced by chairman and president of the ICT, Professor Peter Hewlett. In addition to the 14 presented papers, 26 posters were also presented. The event was kindly supported by the David Ball Group, Grace, Isolearn, Sika and Zwick-Roell.

The forum was divided into six sessions: timber for structural applications; use of waste materials in construction; materials for nuclear waste immobilisation; cement hydration; durability of structures; and materials testing.

Materials covered included the commonly researched cement, concrete, steel and timber, but also more diverse materials such as basalt fibres, bamboo, ash residue, polystyrene mortars, photocatalytic self-cleaning materials, Portland cement barium sulfide for nuclear waste remediation.

Mark Tyrer (IOM3) introduced the awards presentation, and encouraged the young researchers to become involved with the appropriate professional institutions and learned societies, and to actively engage with the profession (Figure 3). The forum chairman Professor Peter Hewlett (ICT) then presented the following prizes and certificates.

- Institute of Concrete Technology Prize (oral presentation): Yanfei Yue (University College London), for her paper on: ‘Characterisation of Friedel’s salt in cementitious materials with Raman spectroscopy’.
- Institute of Materials Minerals and Mining Prize (oral presentation): Julia Herterich (University of Leeds), for her paper on: ‘Microstructure and phase assemblage of low-clinker cements during the early stages of carbonation’.

- Institute of Materials Minerals and Mining Prize (oral presentation): Xiaojie Li (University of Chinese Academy of Sciences), for her paper on: ‘Characterisation of Friedel’s salt in cementitious materials with Raman spectroscopy’.
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Institute of Concrete Technology Prize (poster presentation): Haolin Su (University of Birmingham), for his poster: ‘Physical and mechanical properties of concrete containing single and mixed sized rubber particles with and without pre-treatment’.

Institute of Concrete Technology Prize (poster presentation): Sukina Alzyound (Imperial College), for her poster: ‘Effect of spacers on concrete transport properties and chloride penetration’.

The forum was an interesting, vibrant and varied event, and the quality of both the papers and the young researchers present bodes well for the future of research into construction materials. As the young researchers continue their research, several of the attendees plan to submit their findings to this journal.

Plans for the third Young Researchers’ Forum are already underway; this will be organised by IOM3 and hosted at Imperial College, London in the spring of 2016. The authors and organisers would like to add their congratulations to the prize winners and to thank all the attendees and researchers for their efforts in making the forum a success.

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