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Eurosteel ~~2020~~ 2021 Sheffield

The 9th European Conference on Steel and Composite Structures, 1-3 September 2021


The University of Sheffield Department of Civil & Structural Engineering is delighted to be organising the 9th in the series of Eurosteel conferences. We had hoped to be welcoming international delegates in September 2020 but unfortunately, in common with many major conferences worldwide, we were overtaken by the defining event of 2020, the coronavirus pandemic. However, we are now looking ahead to September 2021 and adding the Steel City of Sheffield to the list of cities (Athens, Prague, Coimbra, Maastricht, Graz, Budapest, Naples and Copenhagen) that have hosted this prestigious event. Eurosteel conferences offer a fantastic opportunity for academics and practitioners to present and discuss the very latest developments in steel construction. The 2021 event will be no exception and we are looking forward to welcoming participants from around the globe and exchanging ideas, best practice and emerging design and construction approaches for the benefit of new and experienced academics, researchers, students and construction professionals alike.

As a foretaste of what Eurosteel 2021 has to offer, we are delighted to be able to release for publication in this issue of Steel Construction three of the invited Keynote papers. Each of these gives a forward-looking view of a topic which will undoubtedly be vital to the future of steel construction, as well as reporting on front-line research by highly-regarded internationally leading researchers. High-strength steels have already become an established part of steel construction, but new opportunities are continually being investigated. Dan Dubina's article shows how they can be used to make a contribution as the strong components in the earthquake-resistant design of multi-storey framed buildings. Plastic energy dissipation can then be concentrated on other, low-strength ductile members; this has not been possible with the traditional range of structural steels. Three-dimensional printing is developing at a rapid pace, and new techniques such as Wire-and-Arc Additive Manufacturing, is particularly suited to robotic steel fabrication. It allows designers to explore a field of irregular and individually optimised structural forms without the constraints of repetition which have been necessary for economical fabrication and construction. Jörg Lange's article links this technique with topology optimisation and numerical analysis to show how the mass of connecting elements can be minimised. The potential to extend this approach is obvious. Finally, with the general imperative to reduce energy consumption and Carbon emissions worldwide, the thrust to design structures using cold-formed framing systems in place of traditional hot-rolled steel is becoming irresistible. The paper under the lead-authorship of Dinar Camotim gives an overview of international research in this field, and illustrates the challenges for designers as a result of the multiple instability modes which must be taken into account.

The local organising committee in Sheffield would like to take this opportunity to thank the International Steering and Scientific Committees, and the many authors of the excellent papers that have been submitted, reviewed and accepted, for their hard work. We are certain that the delayed Eurosteel 2020 conference, now to be held in 2021, will be worth the wait, and hope to see many readers of Steel Construction in the Steel City, Sheffield, next September.

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