Editorial

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It is always a great pleasure to write an Editorial for *Structures and Buildings*. This month's papers demonstrate once again the impressive breadth of on-going research in various sub-fields of Structural Engineering, including the analysis and design of reinforced concrete (RC) and steel structures, and the effects of fire and seismic actions on them, with interesting contributions from five different countries (Argentina, Australia, England, Iran and my own Italy).

The first paper of this issue, by Ercolani *et al.* (2018), briefs on the ability of two different non-destructive testing (NDT) methods, namely ultrasonic pulses and the sclerometer index (SI), to assess the deterioration of RC structures due to overheating followed by sudden cooling. The study finds that, in this context, ultrasonic pulses tend to be more reliable than the SI, and that, ultimately, a combination of both methods is desirable.

In the second paper, by Vakhshouri (2018), some new findings on the long-term deflections of RC slabs are presented, with reference to conventional, self-compacting and lightweight concretes. Among the key conclusions of this experimental study, the long term-to-instantaneous displacement ratio is shown to strongly depend on loading age and stress levels. Importantly, predictions of long-term deflections based on existing codes of practice generally appear to be far from the experimental values.

In the third paper, D'Alessandro *et al.* (2018) present an automatic tool, programmed with Visual Basic and interfaced with Microsoft Excel, which implements the component method for evaluating stiffness and strength of beam-to-column steel joints according to the design provisions of Eurocode 3 (BSI, 2005). The tool can be used to plot moment-rotation curves for the steel joints and to derive design charts for their optimal selection.

The fourth paper, by Huang *et al.* (2018), presents the results of an experimental investigation on the thermal and

hygroscopic deformations of Moso bamboo, a biological building material of great engineering potential. The study quantifies the heat- and moisture-induced deformations in the radial, tangential and longitudinal directions, the latter being one order of magnitude lower than the other two. These findings can have significant implications on the design of structural and non-structural elements based on Moso bamboo. Interested readers might want to check the content of a recent themed issue of this journal devoted to 'Bamboo in structures and buildings', published in April 2017 (volume 170, issue 4, pp. 225–318).

In the fifth paper, Behnam (2018) investigates numerically the structural performance of RC frames with different span-to-height ratios subjected to natural fires. One of the most interesting findings is that the potential for a structural failure during the cooling phase increases with the span length. This is particularly relevant to assess the risk that technical crews are exposed to when entering buildings to examine their post-fire conditions.

Earthquake engineering is the focus of the sixth and final paper, by Moghaddam *et al.* (2018), in which the seismic performance of steel moment-resisting frames designed with different equivalent lateral forces is quantified. Using an extensive set of nonlinear dynamic analyses, it has been shown that designing steel frames with more efficient lateral load patterns can massively reduce the level of damage expected under severe seismic events.

On behalf of the editorial panel, I wish to conclude by thanking all the authors for their excellent contributions that, I am sure, will appeal the readership of the journal. As always, comments and discussions on any of the papers are welcome (the procedure is detailed on the last page of each paper), as well as the submission of technical papers that advance theory and practice in any area within the journal's remit.

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