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Editorial

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This issue of *Structures and Buildings* contains eight papers, the first two papers are from ASCE India Conference at Kolkata which focused on 'Analysis and design of resilient structures under dynamic load'. The remaining papers cover a broad range of civil engineering problems.

In the first paper, Kabasi *et al*. (2023) develop an algorithm based on the maximin distance criterion combined with an error norm based on leave-one-out cross-validation (CV) to construct a moving least-squares based response surface for improved reliability estimate. The improved reliability estimation capability of the proposed algorithm, considering the direct MCS-based results as the benchmark, is elucidated numerically by considering two example problems.

In the second paper, Rajbanshi *et al*. (2023) present development for a passive shape-memory-alloy–rubber-bearing isolator for seismic protection of offshore jacket platforms. Dynamic time history analyses are carried out for both isolated and non-isolated jacket platforms using scaled ground motions. These clearly indicate the effectiveness of the isolator in controlling the overall responses of the jacket platform.

In the third paper, Ahmad *et al*. (2023) investigate the structural performance of concrete columns reinforced with various shapes of glass-fibre-reinforced polymer bars and stainless steel stirrups under concentric loading at ultimate limit state. The results show failure modes depended on reinforcement material, shape and stirrup spacing. Finite-element models are also developed and calibrated. Based on the calibrated models, numerical parameters are studied to further understand the behaviour of composite columns reinforced with glass-fibre-reinforced polymer.

In the fourth paper, Angelides *et al*. (2023) perform a detailed review of various analysis methods for blast design of laminated glass panels. The methods identified are categorized into empirical design guidance, analytical models, finite element analysis and equivalent single-degree-of-freedom methods, thereby enabling a comparison of the modelling principles adopted and the material properties assumed within the different categories.

In the fifth paper, Isleem *et al*. (2023) make a detailed analysis of an experimental database of 84 specimens of axially loaded columns strengthened with fibre-reinforced polymer reported by several independent research groups. Based on the analysis, the accuracy and conservativeness of several models under axial compression and flexural loading are first assessed. Expressions for columns strengthened with fibre-reinforced polymer under pure axial compression and modifications for the coefficients of the rectangular stress block are developed.

In the sixth paper, Abeysinghe *et al*. (2023) conduct non-linear numerical modelling of the behaviour of a series of impaired reinforced concrete half-joint beams (HJB). Subsequently, an experimental study is established using finite-element modelling to explore the retrofitting potential of defective HJBs using the deep embedment (DE) technique. They find that the DE technique was thus identified as an ideal option for the retrofitting of impaired HJBs.

In the seventh paper, Kheyroddin *et al*. (2023) investigate the bond behaviour of high-strength steel bars in concrete with steel fibres. The bond behaviour, total energy capacity and failure modes of headed and straight high-strength and normal-strength steel bars are investigated using pull-out tests. The results show that the headed bars had far greater bond stress and total energy capacity than the straight bars. They also found the higher the yield strength of the bars, the higher the energy capacity and bond stress. The increases in fibre ratios did not absolutely increase the bond stress.

In the eighth paper, Hu *et al*. (2023) investigate the effect of certain structural parameters on mechanical and thermal insulation performance of a non-bearing prefabricated straw sandwich concrete wallboard (I-beam beetle elytron plate: IBEPsc) using the finite-element method. This paper provides clear guidance on the future application of beetle elytron plates in prefabricated wallboards.

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