Cite this article
Trevelyan J (2019)
Editorial.
Proceedings of the Institution of Civil Engineers – Engineering and Computational Mechanics
172(4): 124, https://doi.org/10.1680/jencm.2019.172.4.124

Engineering and Computational Mechanics

ice Publishing

Editorial

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On behalf of the Editorial Board, I would like to welcome you to this issue of *Engineering and Computational Mechanics*. The issue contains four contributions, and it is interesting to see how this selection of papers allows us to see and compare the three main research approaches in mechanics: experimental testing, theoretical analysis and computational modelling.

The first article, Maunder and Izzuddin (2019), focuses on numerical methods, and describes tests of three different finite-element formulations recently developed for plate and shell structures. While all element types they tested are found to overcome the locking effect that can classically be found using thin shell isoparametric elements, these authors show that some element types available in the literature can, under some circumstances, give rise to large errors and highly oscillatory solutions. This will be an essential consideration for engineers using plate and shell finite-elements.

The second article, Zhang and Kang (2019), considers a new pinned joint design and its behaviour when subjected to out-of-plane loading. In this design, the analysis is complicated by the inclusion of rubber pads between the opposing lugs, and it is important to understand the nonlinearity and frictional contact between these parts. The authors conducted finite-element simulations and tested their numerical solutions against experimental results, with promising results showing the effect of the rubber pads in improving the deformation behaviour of the joint under out-of-plane loading.

The third article, Lim (2019), contains the analytical development of a theoretical expression giving longitudinal wave speeds in slabs as functions of Poisson's ratio and constraint conditions. This will be useful to engineers employing slabs under the particular constraints considered, as they can use these results to give a more accurate description of the wave speed than is available from the classical expressions that are derived using certain assumptions. The derivation is presented in detail, and the wave speeds that result from the new description are presented in interesting graphical ways.

The final article in the issue, Ramamurthy *et al*., (2019), presents an experimental study of the effect of counterflowing wall jets to provide efficient mixing of effluents discharged into streams from wastewater plants. These jets cause a complex turbulent flow field to develop that enhances the rapid mixing of the effluent into the stream. In their experiments a salt solution was used to represent the effluent and this allowed a ready measure of concentration to demonstrate the extent of the mixing of the fluids. By varying jet parameters, for example jet velocity and angle, the authors produce results that show how a high degree of mixing can be achieved in a short distance. These flows could be of interest in a variety of different engineering situations requiring rapid mixing of fluids.

I hope you will enjoy this issue of *Engineering and Computational Mechanics*.

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