

Editorial

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As a Member of the Editorial Panel of *Geotechnical Engineering*, it is with great pleasure that I introduce this first issue of the journal for 2021. First of all, I would like to recognise the high-quality support of all the journal's reviewers and all the members of the Editorial Panel that made possible the publication of this new issue. Their hard volunteer work is not only a fundamental brick for the construction of a high-quality geotechnical journal, but also of that amazing heritage of humanity called science. After the last difficult and dramatic year, in which we have lost many of our certainties, we need to believe even more in the role of science. The science of today is indeed the technology of tomorrow, as well represented by the content of this issue of *Geotechnical Engineering*: the technological and engineering significance of the published papers is self-evident.

This issue features eight articles. The first three papers by de Leeuw *et al.* (2021), Wang *et al.* (2021) and Mortara (2021) deal with interfaces. The first article (de Leeuw *et al.*, 2021) investigates the interface shear strength of polypropylene pipeline coatings and sandy soils by means of direct shear interface tests. Experimental evidence is provided to guide engineers to select the interface friction coefficient between polypropylene pipeline coatings and marine sands characterised by different particle size distributions. Indeed, just a reliable pipe–soil interface strength characterisation allows robust predictions of pipeline response under different loading conditions, like the ones encountered in the subsea environment. The second article (Wang *et al.*, 2021) presents a push-out method to investigate the mechanical response of mortar–rock interfaces for anchor systems at different loading rates. In particular, higher loading rates were associated to a stick–slip behaviour of the interface, characterised by discontinuous and oscillating sliding. The authors also provided a micromechanical interpretation of the stick–slip phenomenon, which allowed the definition of a rheological visco-elastoplastic model for the interface. The third paper (Mortara, 2021) presents a simple but effective model to predict sand–structure interface response, highlighting the role of the stress–dilatancy relation. Model predictions have been compared with literature results, and a clear calibration procedure is presented.

The next three articles by Zhu *et al.* (2021), Ye *et al.* (2021) and Xiao (2021) deals with piles. Zhu *et al.* (2021) describe a series of centrifuge tests performed to investigate the cyclic

lateral response of a tetrapod pile jacket foundation in a kaolin clay, measuring not only the overall load–displacement response, but also the internal forces within the piles. The paper by Ye *et al.* (2021) reports on the response of a fresh cast-in-place concrete pile induced by the penetration of an adjacent pile casing in a clay soil. Large-deformation finite-element analyses have been performed to reproduce the penetration process: numerical results have been used to propose a practical analytical expression to predict the maximum lateral displacement of the fresh concrete pile due to adjacent casing penetration. The numerical model has been validated by means of both centrifuge test and field monitoring data. The paper by Xiao (2021) examines the role of the axial force in a slope-stabilising pile in the context of the kinematic theorem of limit analysis. If compared with other approaches that neglect the role of the axial force in the pile (e.g. Ausilio *et al.*, 2001), the method presented in the paper predicts different locations of the slip surface and allows a conservative calculation in terms of required pile length.

The next article (Chodorowski *et al.*, 2021) presents a very interesting case history set in London, UK, describing the interaction between the Crossrail tunnel and a building situated directly over it. The paper discusses the ‘geotechnical path’ followed by the authors to overcome the original plan of demolition of the building and extraction of the existing foundation piles, achieving a solution that keeps the building and reduces construction costs. The final article in this issue is a discussion article (Zhang *et al.*, 2021) of a research paper by Zhang *et al.* (2020) about the challenges of earth pressure balance tunnelling in weathered granite with boulders.

I hope that all readers enjoy this February issue of *Geotechnical Engineering*.

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