

## Early Career Group Event

9<sup>th</sup> May 2019, 6:30pm

Godfrey Mitchell Theatre, ICE, One Great George Street, London, SW1P 3AA

### Good FEA Needs a Suspicious Mind

#### About good practices in validation of Finite Element Models in Geotechnical Engineering

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FEA outputs should always be viewed with healthy suspicion – it's part of the validation process. But FEA users are often in their early career while the experience to know whether FEA outputs are plausible grows throughout a career. How can that knowledge gap be bridged?

FEA should be viewed as a team activity, not a lonely pastime. Input decisions and output reviews should be discussed with the project team every step of the way, involving those with wider geotechnical experience but perhaps little knowledge of FEA. Everybody gains knowledge that way.

Validation is not simply a process of comparing outputs with measurements until they match, it should ensure that the governing aspects of ground behaviour in a project have been captured faithfully.

The importance of this will be demonstrated using the speaker's experience of modelling geogrid applications. While fudging input parameters could sometimes get the right output, radical changes to the modelling approach and a team effort were needed to simulate the true mechanical behaviour of stabilising geogrids accurately.

#### Dr Andrew Lees



is Senior Application Technology Manager at Tensar International, Director of Geofem and Visiting Fellow at the University of Southampton. He has 20 years of experience in the practical application of numerical analysis tools in geotechnical design, focussing more recently on geogrid applications since joining Tensar. He authored the textbook Geotechnical Finite Element Analysis published by the ICE in 2016 as well as the NAFEMS guidebook Obtaining Parameters for Geotechnical Analysis and was on the redrafting panel for Eurocode 7 Part 1. He coordinated the European COGAN project on improving competency in geotechnical numerical analysis and is a member of the NAFEMS Geotechnical Working Group. He is a Chartered Engineer and member of the ICE and BGA.

*Prior registration for the event is not required.*

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