

WCPM/CSC joint seminar

Generalised pore-network modelling

Ali Q. Raeini

Department of Earth Science and Engineering,
Imperial College London

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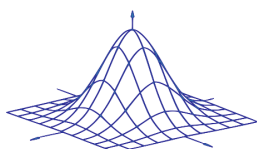
D202 Seminar room, School of Engineering, 2nd Floor

Abstract: Pore-network modelling is an efficient tool for predicting Darcy-scale properties of porous media. However, over-simplification of the pore-space in conventional network models can result in significant errors in their predictions. To overcome this problem, we have developed a new generalised network modelling workflow that combines the superior efficiency of pore network models with the higher accuracy of direct numerical simulations. We present the validation of this model using direct two-phase flow simulations on a pore-by-pore basis. This validation allows us to quantify and minimise the errors and uncertainties introduced due to the coarse description of the void space in the network model. We demonstrate the capability of the generalised network model in predicting relative permeability and capillary pressure curves while taking into account the heterogeneous nature of porous media at different scales. Finally, our plan for further validation of the model with available micro-CT images of two-phase flow processes and possible extensions of the method for modelling different processes is discussed.

A buffet lunch is available from 12:45 pm.



More info: <http://warwick.ac.uk/wcpm/seminars>



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