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A Macroscopic Model for Unsaturated Flow in Deformable Evolving Porous Media

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In this work we derive a model for a deformable porous medium with a growing interface and with phase change to model eco-hydro-mechanical problems in which there is a continuous deposition of porous substrate on the surface and the simultaneous decay and phase change between solid and fluid. The model will then be simplified for one-dimensional scenarios or in multi-dimension under small deformations, leading to a treatable set of equations. The time and length-scales of the problem are discussed and its limiting behaviour is discussed with the help of numerical simulations. Applications to environmental and manufacturing problems are discussed.

Participation

In-Person

References

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Primary author: ICARDI, Matteo (University of Nottingham)

Presenter: ICARDI, Matteo (University of Nottingham)

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