Accepted Manuscript

A lattice-based system for modeling fungal mycelial growth in complex environments

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PII: S0378-4371(18)30923-3
DOI: https://doi.org/10.1016/j.physa.2018.07.051
Reference: PHYSA 19876

To appear in: *Physica A*

Received date : 21 September 2017
Revised date : 27 June 2018

Please cite this article as: H. Du, M. Ayouz, P. Lv, P. Perré, A lattice-based system for modeling fungal mycelial growth in complex environments, *Physica A* (2018), https://doi.org/10.1016/j.physa.2018.07.051

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***Highlights (for review)**

Highlights of this work include:

- A novel, stochastic, lattice-based model for mycelial network is presented.
- The tip-extension algorithm eliminates the geometrical restriction of the lattice.
- The mycelial growth in porous media is modeled with the thigmotropism mechanism.
- The validated model predicts the biomass invasion and the network densification.
- The discrete microscopic model can be upscaled to a continuous, large-scale one.

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