Contribution ID: **159**   Type: **Poster (+) Presentation**

Tortuosity and permeability of random porous medium using deep learning

Friday, 4 June 2021 09:40 (1 hour)

We will present our recent results on porosity (P), permeability (K), and tortuosity (T) of artificial, randomly generated porous medium predicted directly from the geometry images [1]. We will show that convolutional neural networks (CNN) can predict porosity, permeability, and tortuosity based only on the obstacles' picture. The CNN is trained on artificial data samples, for which the permeability and tortuosity are obtained within the Lattice-Boltzmann method. The CNN predicts permeability and tortuosity with about 6% accuracy.

[1] Graczyk, K. M., and Matyka, M., Predicting Porosity, Permeability, and Tortuosity of Porous Media from Images by Deep Learning, Sci Rep 10, 21488 (2020)

Time Block Preference

Time Block A (09:00-12:00 CET)

References

Graczyk, K. M., and Matyka, M., Predicting Porosity, Permeability, and Tortuosity of Porous Media from Images by Deep Learning, Sci Rep 10, 21488 (2020)

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Student Poster Award

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Session Classification: Poster +

Track Classification: (MS15) Machine Learning and Big Data in Porous Media