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3D Reconstruction of Porous materials using Deep Learning

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Precise 3D demonstration of heterogeneous porous materials while critical is still a challenge. The advantage of having such models includes for example more accurate characterization and estimation of transport properties. Realistic 3D representations can be achieved using several high-resolution 2D samples. We applied a deep learning algorithm to utilize 2D images and reconstruct 3D models of complex materials such as lithium-ion battery electrodes. The deep learning algorithm was trained using 2D images for generating 3D samples. The results of testing the trained network with new samples show the capability of the algorithm for reproducing important structural properties. The reconstructed samples also reproduce the results for flow and heat properties in an acceptable range.

Participation

In-Person

References

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Energy Transition Focused Abstracts

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