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Inertial effects on tortuosity

Thursday, 22 May 2025 12:20 (15 minutes)

We will present our latest observations on tortuosity in pore scale porous media model under high Reynolds numbers (Re) during the transition from the Darcy to the non-Darcy, inertial regime [1]. Unexpectedly, we found that tortuosity does not follow a natural monotonous decrease with increasing flux. We will provide an overview of the method and algorithms employed. Then, we will discuss how we understand the physical mechanisms in the flow causing observed ambiguity. In analyzing our findings, we highlight the significance of inertial effects, the kinetic energy distribution and confinement within the vortices emerging in the flow.

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References

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