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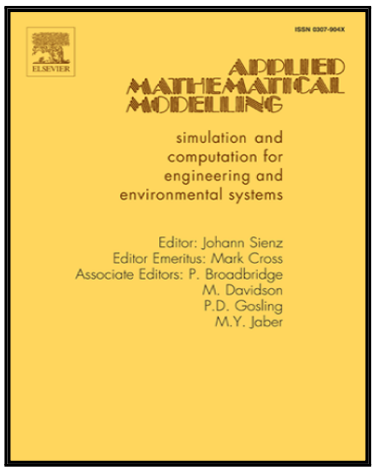

Numerical simulation and analysis of fluid flow hydrodynamics through a structured array of circular cylinders forming porous medium

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Highlights

- Spatially periodic infinite array of circular cylinders modeled as a porous medium.
- The effect of the medium porosity and Reynolds number (Re_D) on the REV is studied.
- The TKE and TDR increased with Re_D.
- The TKE and TDR increase with a decrease in porosity.
- The macroscopic pressure gradient was investigated for a wide range of ϕ and Re_D.

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