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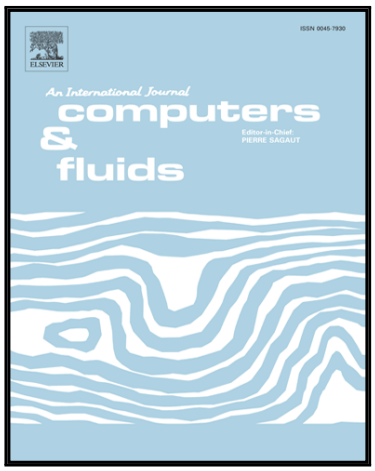

Three-dimensional computational model of multiphase flow driven by a bed of active cilia

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Highlights

- In a two-fluid configuration, vortices are generated by cilia metachronal motion.
- Surface tension between the fluids confines vortices to the vicinity of the cilia.
- Confinement of vortices alters the fluid velocity profiles in the flow chamber.
- Alteration of velocity profiles results in enhanced mixing or enhanced transport.

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