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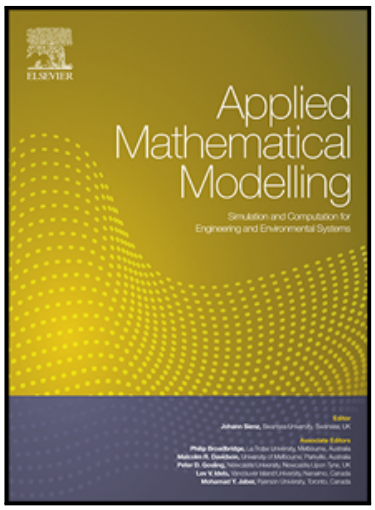

A simplified model for unsteady pressure driven flows in circular microchannels of variable cross-section

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Highlights

- A fast model for unsteady flows in circular channels is presented
- Channels have a small aspect ratio but can have large diameter variations
- The simplified model is up to 2 orders of magnitude faster than CFD
- It accounts for some inertia with no restrictions on forcing frequency or shape
- The model can be applied to a wide spectrum of problems in MEMS and bio-mechanics

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