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Stratified laminar flows in a circular pipe: new analytical solutions in terms of elementary functions

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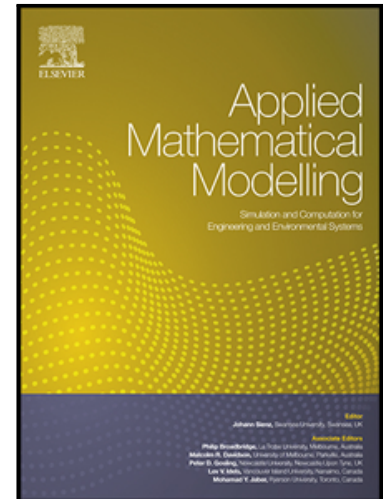
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1. Highlights

- Laminar stratified two-phase flows in circular pipes are studied.
- A concept of generalized symmetry (symmetry with respect to the circular interface) is used.
- New class of analytical solutions expressed in terms of elementary functions is found.
- For inclined pipes, six characteristic flow regimes are introduced.
- The regimes illustrate the influence of the inclination angle of the pipe on the flow direction.

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