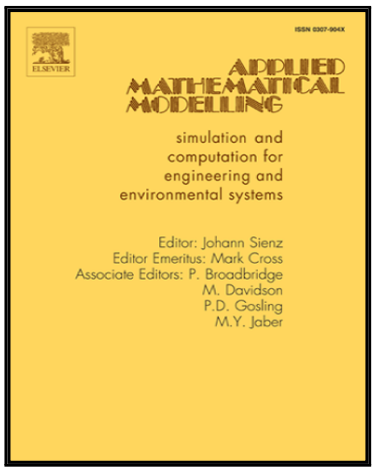

Analytical Solutions of Channel and Duct Flows due to General Pressure Gradients

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Highlights

- New analytical closed-form solutions of unsteady incompressible Navier-Stokes equations.
- Valid for any pressure gradients (even aperiodic discontinuous) in both planar and circular duct flows.
- Encompassing the classic solutions obtained individually for a few simple pressure gradients.
- Involving no singularities, and applicable even to discrete forms of pressure gradients.
- Useful in validating numerical solutions and predicting the time required for steady oscillation.