

# Accepted Manuscript

Symmetry, Validation, and Scattering Matrices for Time–Domain Scattering in Waveguides

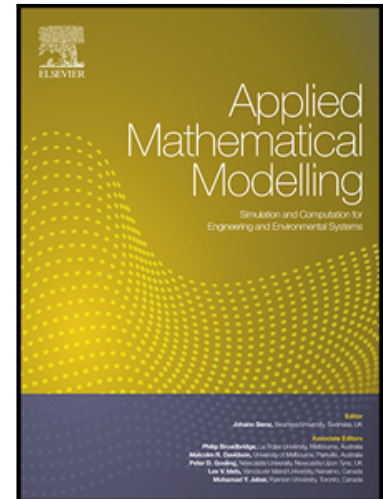
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**Highlights**

- Channel waveguide problem with scattering regions are presented.
- Exploiting symmetry, Mode-matching solutions are converted to scattering and transfer matrices.
- Series of identities are presented for scattering matrix.
- Time-domain scattering by incident Gaussian wave packets are computed.

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