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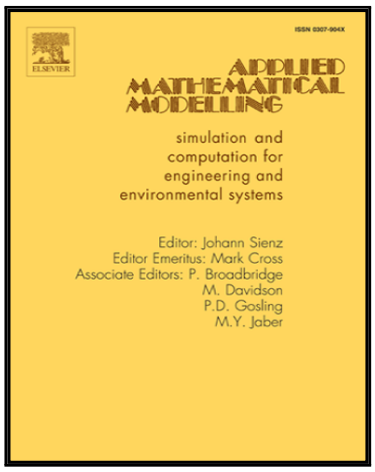

New asymptotic heat transfer model in thin liquid films

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Highlights

- An improved Nusselt solution is derived, which takes into account heat transfer phenomena across the free surface
- This model is studied and validated numerically by comparing with 2D direct simulations of the heat transfer equation
- A dynamical system analysis of the proposed model is performed
- Coupling between the heat transfer and the hydrodynamics is taken into account
- The proposed model is strictly hyperbolic and provides the predictions with improved accuracy

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