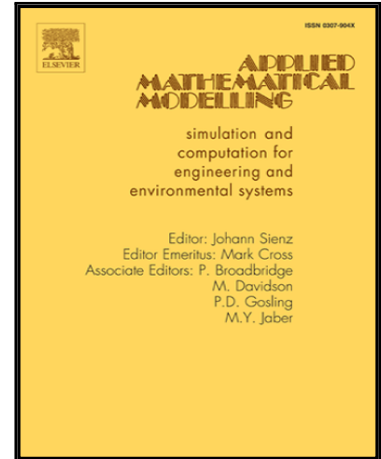


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An Elrod-Adams cavitation model for a new nonlinear Reynolds equation in piezoviscous hydrodynamic lubrication

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**Highlights**

- A more rigorous nonlinear model for cavitation in piezoviscous lubrication is posed
- Nonlinearities are due to the piezoviscosity law and the cavitation model
- Mathematical analysis provides solution properties and insight on numerical methods
- A new numerical method copes with multivalued Heaviside operator and nonlinear terms
- Examples with high pressure and gradient illustrate the model and methods performance

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