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A level-set method for two-phase flows with soluble surfactant

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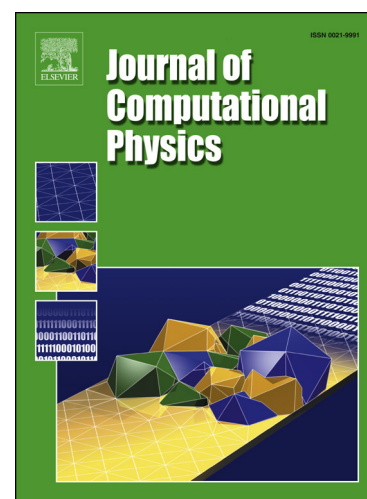
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Highlights

- A level-set method is proposed for computing two-phase flows with soluble surfactant.
- A level-set based diffusive domain method is presented for solving PDEs with Robin boundary conditions.
- A conservation law for total surfactant mass is derived.
- A rescaling procedure is proposed to compensate for the loss of surfactant mass due to numerical diffusion.
- Fully 3D numerical simulations are presented to demonstrate the effect of surfactant on fluid dynamics and the capability of the level-set method in handling complex geometries .

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