Abstract Submitted
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Numerical study of the evaporation of sessile drops: formation of hydrothermal waves[1] KHELLIL SEFIANE, University of Edinburgh, GEORGE KARAPETSAS, Imperial College London, PEDRO SAENZ, PRASHANT VALLURI, University of Edinburgh, OMAR MATAR, Imperial College London — We investigate theoretically the spontaneous evaporation of sessile drops and the formation of hydrothermal waves induced by thermal gradients. We use integral balance equations in combination with lubrication theory to model the motion and evaporation of the drop taking into account inertia. Contact line singularities are avoided through the adsorption of ultra- thin films wherein evaporation is suppressed by the disjoining pressure. We discuss our numerical results and compare them with 3D simulations, the latter performed using the volume-of-fluid method.

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