

[Nas, S.; Tryggvason, G.](#)

Thermocapillary interaction of two bubbles or drops. (English) Zbl 1136.76584
[Int. J. Multiphase Flow](#) 29, No. 7, 1117-1135 (2003).

Summary: Numerical simulations of the thermocapillary motion of a pair of two- and three-dimensional fully deformable bubbles and drops are presented. The Navier-Stokes equations coupled with the energy conservation equation are solved by a Front Tracking/Finite Difference Method. The material properties of the drop/bubble fluid and the ambient fluid are different, and surface tension depends on the temperature. At finite Reynolds (Re) and Marangoni (Ma) numbers, the results show that bubbles and light drops line up perpendicular to the temperature gradient, while spacing themselves evenly across the channel. This contrasts with the zero Reynolds and Marangoni previous results where the velocity of each bubble is unaffected by interactions between bubbles.

MSC:

[76Txx](#) Multiphase and multicomponent flows

Cited in 14 Documents

Keywords:

[thermocapillary migration of bubbles/drops](#); [multiphase flow](#); [front-tracking finite-difference method](#)

Full Text: [DOI](#)