Dynamic Van der Waals Theory and Its Applications

Tiezheng Qian

The Hong Kong University of Science and Technology

The dynamic van der Waals theory [Phys. Rev. E 75, 036304 (2007)] is employed to model the growth of a single vapor bubble in a superheated liquid on a flat homogeneous substrate. The bubble spreading dynamics in pool boiling has been numerically investigated for one-component van der Waals fluids, with a focus on the effect of the substrate wettability on bubble growth and contact line motion.