Gibbs effect on evaporation of a vapor bubble.[1] ARASH ASADOL-
LAHI, ASGHAR ESMAEELI, Southern Illinois University Carbondale — In nu-
merical simulations of boiling, the interface temperature is generally assumed to be
the same as the saturation temperature at the system pressure. While this is a
reasonable assumption for stable boiling, it may not be correct for rapid evapora-
tion, where the highly unsteady nature of the physics can lead to the deviation of
the interface temperature from the saturation temperature. In this study we ex-
plore the effect of the interface temperature on the stable and unstable growth of a
vapor bubble in a superheated liquid. To this end, we use a comprehensive Gibbs-
Thomson equation to determine the interface temperature and explore the effect of
local variation of this parameter on the bubble dynamics.

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