Abstract Submitted
for the DFD13 Meeting of
The American Physical Society

Asymmetric interface temperature during vapor bubble growth ANTOINE DIANA, Aix-Marseille University, MARTIN CASTILLO, TED STEINBERG, Queensland University of Technology, DAVID BRUTIN, Aix-Marseille University, AMU COLLABORATION, QUT COLLABORATION — We investigate the nucleation, growth, and detachment of single vapor bubbles at the interface microscale. Shear flow is used to investigate pool and convective boiling situations using visible and infrared visualizations. We determine a threshold Reynolds number for the onset of asymmetric interfacial temperatures. Below this threshold, bubble growth is geometrically and thermally symmetric, while above, bubbles no longer grow thermally symmetrically. This is explained by the dominance of convective heat transfer removal over viscous effects at the bubble interface. We experimentally demonstrate asymmetric interfacial temperature profiles that should be taken into account for future bubble growth modeling.

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Date submitted: 26 Jul 2013 Electronic form version 1.4