

Abstract Submitted  
for the DFD15 Meeting of  
The American Physical Society

**Coalescence preference in densely packed bubbles** YESEUL KIM, SU JIN LIM, SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University, BOPIL GIM, Department of Bio and Brain Engineering, Korea Advanced Institute of Science and Technology (KAIST), BYUNG MOOK WEON, School of Advanced Materials Science and Engineering, SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University — Coalescence preference is the tendency that a merged bubble from the contact of two original bubbles (parent) tends to be near to the bigger parent. Here, we show that the coalescence preference can be blocked by densely packing of neighbor bubbles. We use high-speed high-resolution X-ray microscopy to clearly visualize individual coalescence phenomenon which occurs in micro scale seconds and inside dense packing of microbubbles with a local packing fraction of  $\sim 40\%$ . Previous theory and experimental evidence predict a power of -5 between the relative coalescence position and the parent size. However, our new observation for coalescence preference in densely packed microbubbles shows a different power of -2. We believe that this result may be important to understand coalescence dynamics in dense packing of soft matter.

Byung Mook Weon  
Sungkyunkwan University

Date submitted: 31 Jul 2015

Electronic form version 1.4