

Abstract Submitted
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Direct imaging of nanobubble Ostwald ripening using graphene liquid cell TEM CONG XU, QIAN CHEN, Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, STEVE GRANICK, IBS Center for Soft and Living Matter, UNIST, South Korea — We directly image the growth, morphology evolution and interaction dynamics of gas nanobubbles in a thin liquid, which are relevant to many materials and electrochemical processes. Using the recently emergent liquid phase transmission electron microscopy (TEM), we resolve the dynamics of nanobubbles *in situ* at nm resolution in real time. We find that nanobubbles grow through an Ostwald ripening-like process, where adjacent bubbles stochastically fluctuate to disappear or enlarge. Capability of feature tracking enables us to characterize the motions and shape fluctuations of nanobubbles, providing insights into the gas-liquid interfacial fluctuations explored at the nanoscale.

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