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The pinch-off of a bubble S.T. THORODDSEN, National University of Singapore, T.G. ETOH, K. TAKEHARA, Kinki University, Japan — We report ultra-high-speed imaging of the pinch-off of a bubble, using frame-rates up to 1,000,000 frames/s, with an exposure time as short as 0.5 μs and spatial resolution as small as 5 μm. The bubbles are grown attached to a circular needle at a very slow rate, until they become unstable to buoyancy forces and pinch off from the needle. Our focus is on measuring the power-law describing the reduction in the neck-radius vs time, for a bubble in a low-viscosity liquid, such as water. Our measurements will be compared to theory which suggests the radius should decrease as time to the power $^1/_2$. Results will be presented for three different gases as well as different bubble sizes, generated by using different sized needles from 2 to 5 mm.

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