

Fluid dynamics in texture formation and flow of bubbles in Guinness beer

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To clarify the mechanism of the texture of the number density of dispersed bubbles in Guinness beer poured into a glass, we investigated spatiotemporal development of the pattern propagation velocity and the bubbles advection velocity near the inclined wall. To measure the pattern and bubble velocities, we employed pattern analysis based on Fourier transform and Particle Tracking Velocimetry obtained by high speed imaging. We found that the pattern is composed of the bubble-rich bulk and the fluid blobs which contain less bubbles. Furthermore, the temporal change of the bubbles velocity suggests that fluid blobs fall in bubble-rich bulk along the inclined wall. We suggest that the roll-wave instability is relevant to the pattern formation.

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