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Bubble entrapment under the impact of a viscous drops onto a solid surface K. LANGLEY, E.Q. LI, S.T. THORODDSEN, King Abdullah University of Science and Technology — When a high-speed viscous drop impacts onto a solid surface, the lubrication pressure leads to the entrapment of an air-disc which contracts into an isolated central bubble. The maximum disc-diameter is marked by microbubbles, followed by a fully wetted outer region. However, the outer edge of this wetted region forms a lamellar jet traveling along the surface, which entraps a myriad of micro-bubbles.[1,2] The tip of the spreading lamella separates from the solid surface and levitates on a lubricating air layer. The local contacts between the levitated sheet and the solid surface form wetted patches and finally entrap bubbles when the wetted patches meet the advancing contact line, through topological change. Isolate bubbles are also entrained through the advancing contact line. These bubble entrapment mechanisms are investigated with high-speed video imaging and are found to be highly dependent on the drop viscosity and surface properties. We use high-speed interferometry to measure the thickness of the air-layer under the advancing lamella.

[1]Thoroddsen, S. T., Takehara, K. & Etoh, T. G. 2010, *Phys. Fluids*, **22**, 051701.
[2]Palacios J., Hernandez J., Gomez P., Zanzi C., Lopez J. 2012, *Exp. Fluids*, **52**, 1449–1463.

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