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Air entrapment under drop impacts on soft solids[1] KENNETH R. LANGLEY, KAUST, ALFONSO A. CASTREJN-PITA, University of Oxford, S. T. THORODDSEN, KAUST — Prior studies have found that soft solids delay the critical velocity at which drops begin to splash upon impact [1]. We investigate the effects of the surface compliance on the air cushioning at the bottom of a liquid drop impacting onto a soft solid and the resulting entrapment of a central bubble using high-speed interferometry at 5 million frames per second and spatial resolution of 1.05 μm/pixel. The soft solid delays the effects of gas compressibility. We also observe extended gliding of the drop as it initially avoids contact with the surface and spreads over a thin layer of air and investigate the threshold velocity for the onset of gliding. Such extended gliding layers have previously been seen for high viscosity drop impacts [2], but not for low viscosity drops. Additionally, we observe the dynamics as the drop spreads near the splashing threshold to observe effects of the compliance on the ejected lamellae. [1] Howland, C. J., Antkowiak, A., Castrejón-Pita, J. R., Howison, S. D., Oliver, J. M., Style, R. W., & Castrejón-Pita, A. A. (2016). *Phys Rev Lett*, **117** (18), 184502. [2] Langley, K., Li, E. Q., & Thoroddsen, S. T. (2017). *J Fluid Mech*, **813**, 647-666.

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