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Phospholipid-coated microbubbles: the acoustic signature of monolayer buckling VALERIA GARBIN, MARLIES OVERVELDE, JEROEN SIJL, University of Twente, BENJAMIN DOLLET, Universite Rennes 1, NICO DE JONG, DETLEF LOHSE, MICHEL VERSLUIS, University of Twente — In medical ultrasound imaging, the echo of the blood pool is enhanced using ultrasound contrast agents. The contrast agent suspension consists of microbubbles (1 to 5 μm in radius) of an inert gas coated with a phospholipid monolayer. We characterize the changes in microbubble dynamics due to the coating, through combined micromanipulation by means of optical tweezers and ultra-high speed imaging at 15 million frames per second with the Brandaris 128 camera. The experiments reveal that buckling of the phospholipid monolayer increases the non-linear response of the contrast agent bubbles at low acoustic pressure.

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