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Effect of Ultrasound-Induced Bjerknes Force on the Dynamics of Microbubbles. Interaction with Saffman's lift[1] ALBERTO ALISEDA, CHERYN ENGEBRECHT, Department of Mechanical Engineering. University of Washington — We will discuss results of experiments on the trajectories of Ultrasound Contrast Agents immersed in low Reynolds steady flow in a pipe. The microbubbles are subject to hydrodynamic forces, and are under the effect of external ultrasound forcing propagating normal to the flow direction. High speed visualization of the microbubbles trajectories shows significant deviations in the direction perpendicular to the flow. This displacement is due to the balance of the Bjerknes force and Saffman's lift. The dependency of the value and orientation of the microbubbles trajectories indicates a rich mechanism for the coupling between these two forces. In the absence of ultrasound excitation, Saffman's lift forces the microbubbles towards the wall. The volume oscillations induced on the microbubble by the propagating ultrasonic pressure waves significantly modify the lift, reversing its direction and making it away from the wall.

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