ACOUSTICS2008/3030 Measurements and simulations on the wall shear stress from single cavitation bubbles

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Cavitation bubbles collapsing near a solid boundary manifest a jetting effect towards the closest rigid boundary. After impacting on the boundary the jet spreads out radially thereby shearing the surface. It is speculated that cavitation bubbles clean through the resulting shearing forces, e.g. they drag adherent contaminants through the radial spreading jet. Although the cleaning through bubbles is used in a wide set of technologies, for example for pre-cleaning surgical equipment, for bio-film removal in medical and drinking water applications, and in ultraclean processing of semiconductor wafers, very limited experimental studies on the wall shear stress exist. In an effort to shed light on the shear forces caused by no spherical oscillating cavitation bubbles close to boundaries we implement a constant temperature anemometer together with high-speed imaging to elucidate the fluid dynamics near the boundary. Additionally, we perform potential flow simulations with a boundary element method. The boundary layer is resolved with a convolution integral to the solution of Stokes' first problem. In general we find the generation of wall shear stress both in -experiment and simulations- during the growth and collapse of the bubble. Yet, very high shear stress is generated once the jet impacts and spreads on the boundary.