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**Efficiency of air/liquid interfaces in detaching bacteria from a surface**[1] SEPIDEH KHODAPARAST, HOWARD STONE, Princeton University — Gas/liquid interfaces are known to be significantly more effective than shear stress in detaching microscale colloids from substrates by inducing surface tension forces. Providing that a three-phase contact at the interface of a gas bubble, the liquid phase and the particle occurs, the magnitude of the surface tension force can potentially exceed by orders of magnitude the adhesion force, which keeps the micro particles on the surface. We investigate the ability of a moving air/liquid interface to stimulate the detachment of bacteria from a surface. Bacteria are micron-sized living organisms with strong tendency to attach to almost any substrate that they come into contact with. Attachment of bacteria on the surface is a complex process regulated by diverse characteristics of their growth medium, substrate, and cell surface. Moreover, once fixed on the surface, the microorganisms evolve in time to create intricate biofilm structures, which are highly challenging to be removed. The objective of this study to characterise the efficiency of this detachment process as a function of bacterial attachment as well as hydrodynamic parameters such the surface tension and the interface velocity.

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