Abstract Submitted
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Mechanical properties of surface modified microbubbles by Atomic Force Microscopy (AFM) JONATHAN MCKENDRY, COLIN GRANT, STEPHEN EVANS, None — Atomic force microscopy has been used to investigate the mechanical properties of phospholipid coated microbubbles and to quantify their stiffness. The mechanical properties were investigated using tipless AFM cantilevers to compress microbubbles attached to a gold surface in aqueous conditions. The phospholipid microbubbles were produced by microfluidic flow focusing and were found to have a stiffness of 25 mN/m. The attachment of a streptavidin coating increased the microbubble stiffness by a factor of 30 to around 750 mN/m. Further, the effect of temperature on the mechanical and time dependent properties of bubbles has been studied, the results of which have demonstrated that increasing temperature leads to a decrease in microbubble stiffness and an increase creep-displacement. The standard linear model was used to extract to the visco-elastic parameters at different temperatures, this allowed the first determination of the activation energy for creep for a microbubble.

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None

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