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Resonance and streaming of armored microbubbles TAMSIN SPELMAN, University of Cambridge, NICOLAS BERTIN, OLIVIER STEPHEN, PHILIPPE MARMOTTANT, Universite Joseph Fourier, Grenoble, ERIC LAUGA, University of Cambridge — A new experimental technique involves building a hollow capsule which partially encompasses a microbubble, creating an "armored microbubble" with long lifespan. Under acoustic actuation, such bubble produces net streaming flows. In order to theoretically model the induced flow, we first extend classical models of free bubbles to describe the streaming flow around a spherical body for any known axisymmetric shape oscillation. A potential flow model is then employed to determine the resonance modes of the armored microbubble. We finally use a more detailed viscous model to calculate the surface shape oscillations at the experimental driving frequency, and from this we predict the generated streaming flows.

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