## Description of Additional Supplementary Files

# Acoustic microbubble propulsion, train-like assembly and cargo transport

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## This PDF file includes:

Legends for Supplementary Videos 1 to 14.

## Other supplementary materials for this manuscript include the following:

Supplementary Videos 1 to 14.

**Supplementary Video 1.** Gas nuclei in the slit region when the piezo electric transducer is activated.

**Supplementary Video 2.** Microbubbles of different sizes are produced across the slit, with the smallest arising at the centre and larger ones radially across the slit.

**Supplementary Video 3.** Cross-migration of microbubbles. When the acoustic field is turned off, the ellipsoidal microbubbles revert to spherical shape and are squeezed out of the interstice.

**Supplementary Video 4**. An ellipsoidal microbubble undergoes a volume mode oscillation.

**Supplementary Video 5.** A Faraday wave developed at the air/liquid interface of an ellipsoidal microbubble.

**Supplementary Video 6.** Propulsion of an ellipsoidal microbubble along the interstice in the $y$-direction.

**Supplementary Video 7.** Increased power to result in the ellipsoidal microbubbles becoming unstable, behaving erratically or merging with other bubbles.

**Supplementary Video 8.** Propulsion of the microbubble train over long distances.

**Supplementary Video 9.** Train-like assembly and propulsion of ellipsoidal microbubbles.

**Supplementary Video 10.** As the voltage of the piezoelectric transducer increases, the interparticle distance between adjacent microbubbles decreases.

**Supplementary Video 11.** Trapping of microparticle between members of the bubble microtrain.

**Supplementary Video 12.** Cargo transport: trapping and transport behaviour of the bubble train Trapping of microparticle between members of the bubble microtrain.

**Supplementary Video 13.** The acoustic streamlines produced by the oscillation of discoidal microbubbles.

**Supplementary Video 14.** The trapping, transport, and release of superparamagnetic microparticles in gels.