Captions for the supplementary videos

S1: Acoustic streaming experiment with 1 μm particles used as flow trackers. The speed has been slowed down by 50%. The focus of the microscope starts at the bottom of the chamber and gradually moves upwards (z-direction) to finally stop at the top of the chamber. The slider in the left bottom corner indicates with the green horizontal line were the approx. focus is relative the bottom and top of the chamber.

S2: Manual particle tracking of the acoustic streaming using the video analysis tool Tracker. Here, the FM experiment from Fig. 5A is analyzed. Five particles for each direction and part (bottom inward and outward and top inward and outward) are manually tracked and plotted with different colors. Here it is clear that particles move in both directions causing the μPIV algorithm to calculate the difference rather than the actual speed of the moving particles resulting in a lower speed (approx. a factor of 10 difference). It is also seen that the top streaming is faster than the lower streaming speed. Finally, the location where the focus is may give a large impact on the final μPIV results.

S3: Example of a particle experiment used for calculating the energy density in the trapping chamber. After the polyamide particles has been trapped in can be seen that due to the acoustic streaming vortices close to the inlet and outlet of the chamber particles are caught and moved into the pressure node, hence lowering the local concentration of particles outside of the cage. These streaming vortices also help to trap the aggregate.