Electronic Supplementary Material (ESI) for Lab on a Chip.

Supplementary Data

The supplementary data show detailed information about the results represented in Fig.5, where $\boldsymbol{F}$ is decomposed in $\boldsymbol{F=F_{ar}+F_{st}}$ by the use of the force scaling laws of two different sized particles.

Additional material to $F=F_{ar}+F_{st}$:

Averaged total force *F* as a function of frequency for the two different particle sizes:

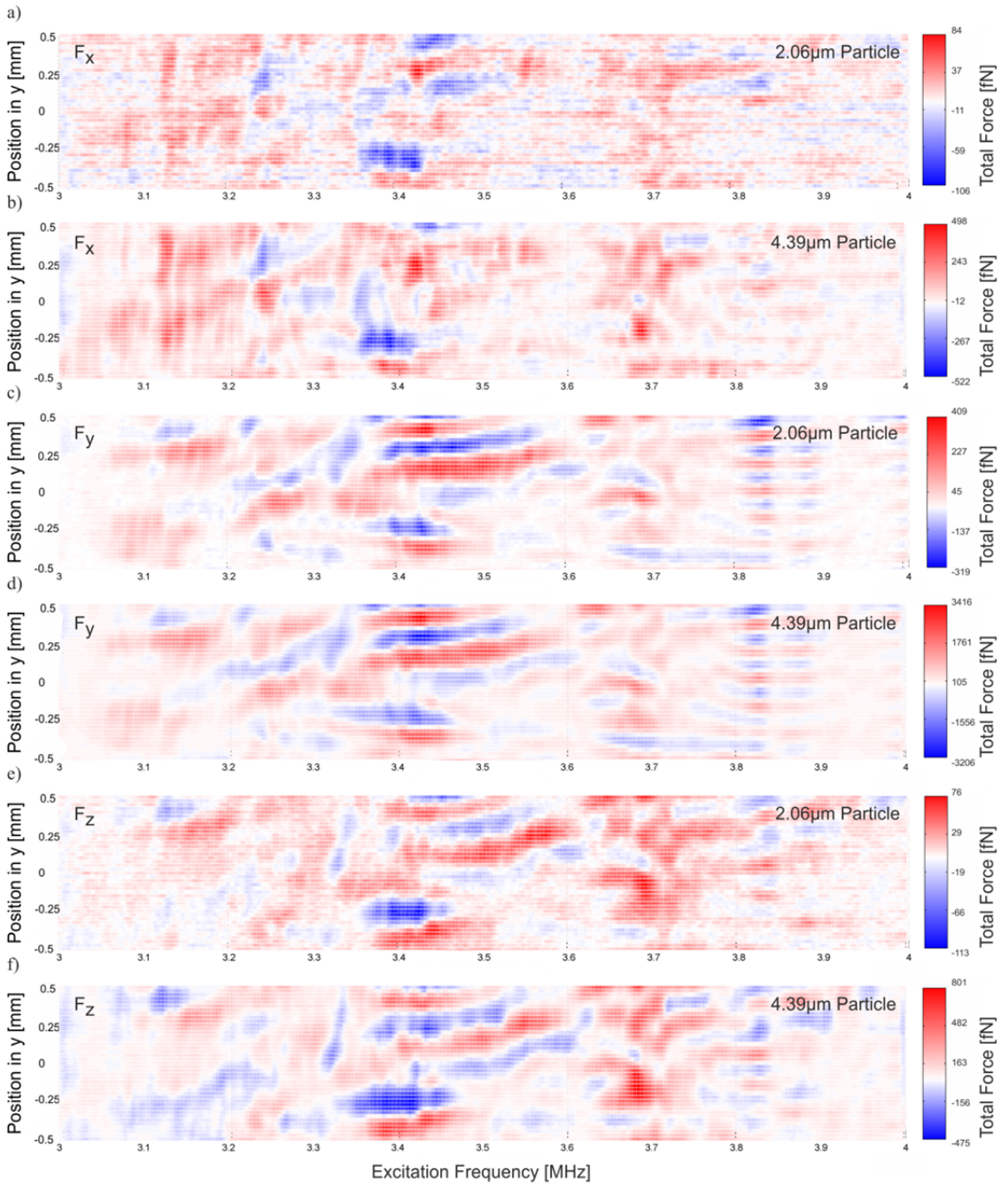

Figure S1: Averaged total force ***F*** as a function of frequency
a-f) show the measured force components F_x, F_y and F_z of ***F*** as a function of frequency for the 2.06 µm and the 4.39 µm particle. The measured frequency range was 3-4 MHz and the excitation amplitude was 10 V_{pp}

Separation of acoustic radiation force and Stoke drag force due to acoustic streaming by the use of the force scaling laws:

Forces in y-direction:

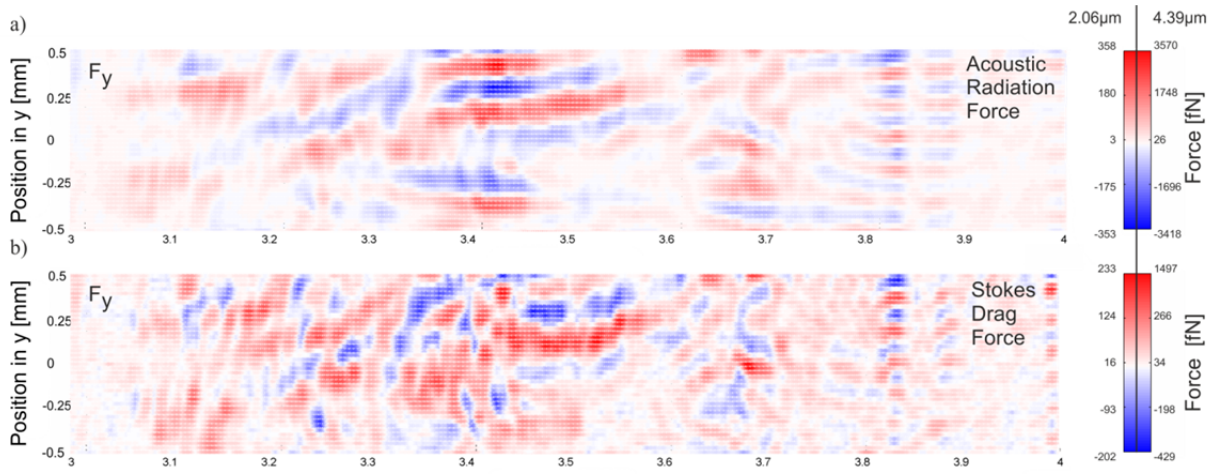

Figure S2: Averaged y-force component of $\boldsymbol{F_{ar}}$ and $\boldsymbol{F_{st}}$
a) and b) show the measured y-force components as a function of frequency for the 2.06 µm and the 4.39 µm particle. The separation was done due to the different force scaling laws for the different sized particles. Supplementary figure 4.c and 4.d was point per point compared with each other by using the information that acoustic radiation force is proportional to the volume ($\propto r^3$) of the particle and the acoustic streaming force only to its radius ($\propto r$). This comparison led to the separation of acoustic radiation and Stokes drag force.