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Supplementary Materials for

Acoustic tweezers via sub–time-of-flight regime surface acoustic waves

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The PDF file includes:

- Legends for movies S1 to S4

Other Supplementary Material for this manuscript includes the following:
(available at advances.sciencemag.org/cgi/content/full/2/7/e1600089/DC1)

- movie S1 (.avi format). Development of localized acoustic patterning region.
- movie S2 (.avi format). Numerical simulation of pulsed SAW, including 2D and 3D models of the piezoelectric substrate and a model of the acoustofluidic interaction.
- movie S3 (.avi format). Analytical model of sub-TOF regime SAW.
- movie S4 (.avi format). Generation of time-averaged localized patterning regions using 50-, 100-, 200-, and 300-ns pulses.

Supplementary Materials

movie S1. Development of localized acoustic patterning region. Intersecting nanosecond-scale SAW pulses generate a local standing wave field in the direction of acoustic propagation. This field can be used for localized acoustic tweezers, where particles outside of the principle patterning region are not substantially unaffected. The pulses are generated using a 40 µm wavelength SAW device actuated at 96 MHz.

movie S2. Numerical simulation of pulsed SAW, including 2D and 3D models of the piezoelectric substrate and a model of the acoustofluidic interaction.

movie S3. Analytical model of sub-TOF regime SAW. Pulses in this regime result in a localized region of time-averaged substrate displacements. Multiple pulses within this limit result in a discrete number of spatially distinct patterning regions.

movie S4. Generation of time-averaged localized patterning regions using 50-, 100-, 200-, and 300-ns pulses. In each case the pulses are generated using a 40 µm wavelength SAW device actuated at 96 MHz.