Supplementary Information For

Optical Potential-Well Array for High-Selectivity, Massive Trapping and Sorting at Nanoscale

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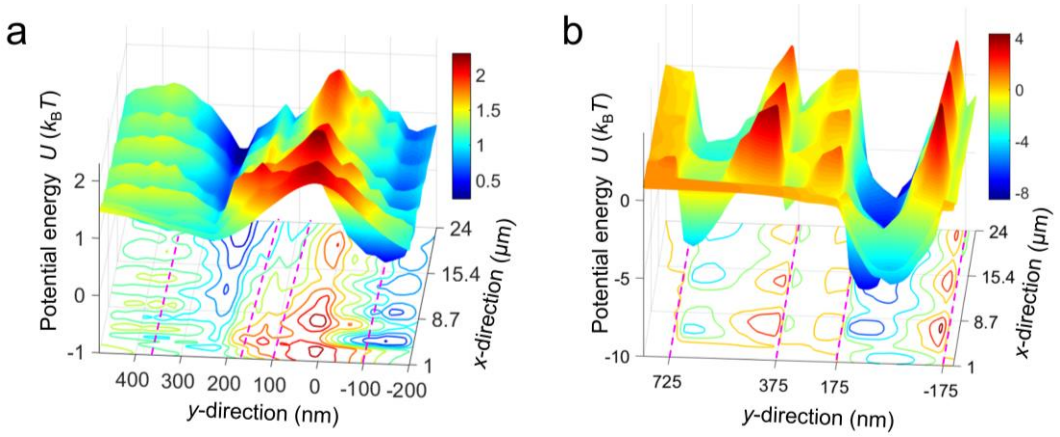

Fig. S1. Potential wells of the 200 nm nanoparticle (a) in a slot waveguide under TE mode excitation. W = 100 nm; G = 60 nm; (b) in a nanowavguide pair under TM mode excitation. W = 350 nm; G = 200 nm.

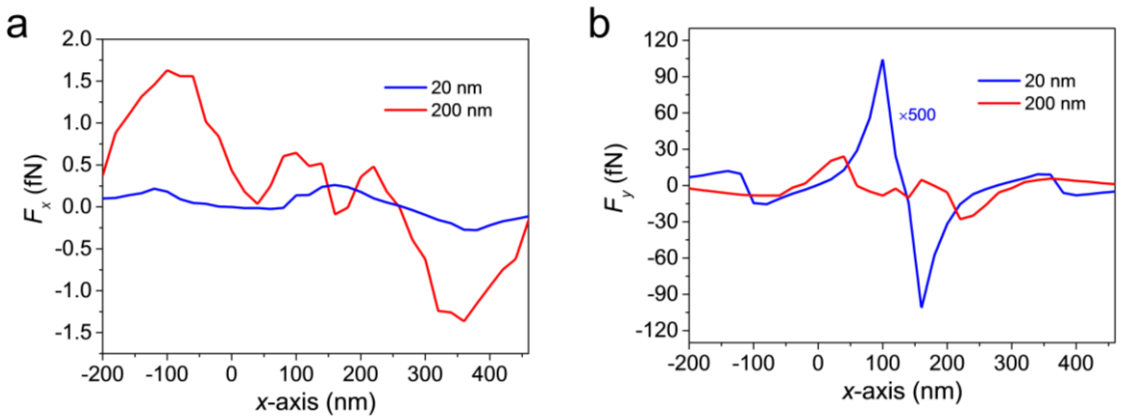

Fig. S2. Optical forces on the 20 and 200 nm nanoparticles. (a) F_x and (b) F_y slong the y-direction in the slot waveguide at x = 7 μm. The force profiles on the 20 nm nanoparticle resemble those of a nanoparticle in a gaussian beam.

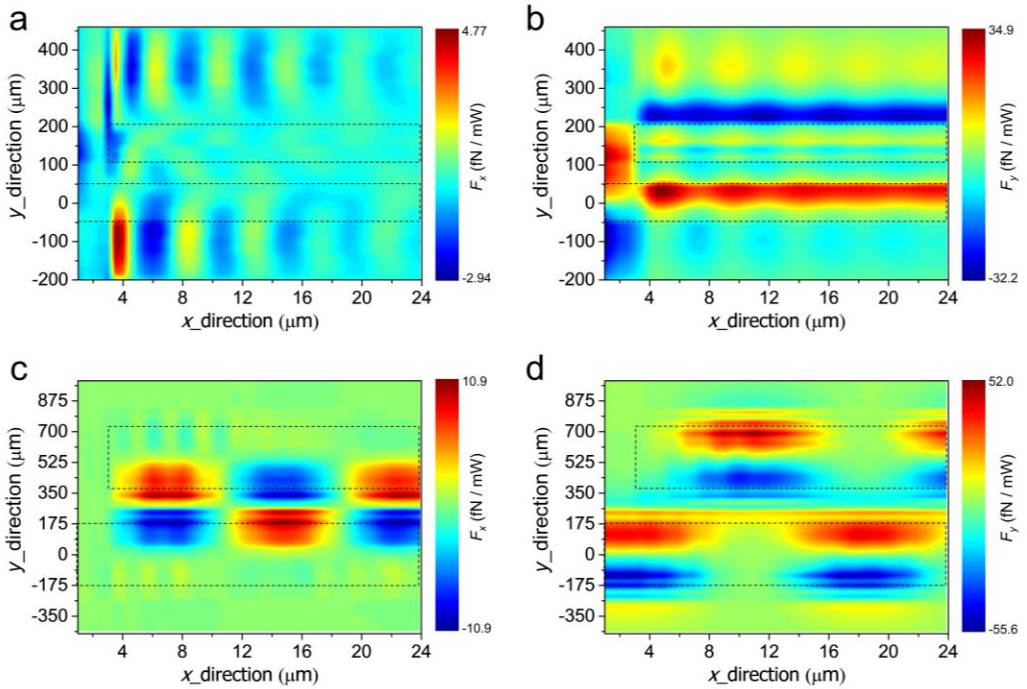

Fig. S3. Optical forces on the 200 nm nanoparticles. (a) F_x and (b) F_y in the slot waveguide with W = 100 nm and G = 60 nm. (c) F_x and (d) F_y in the nanowaveguide pair with W = 350 nm and G = 200 nm.

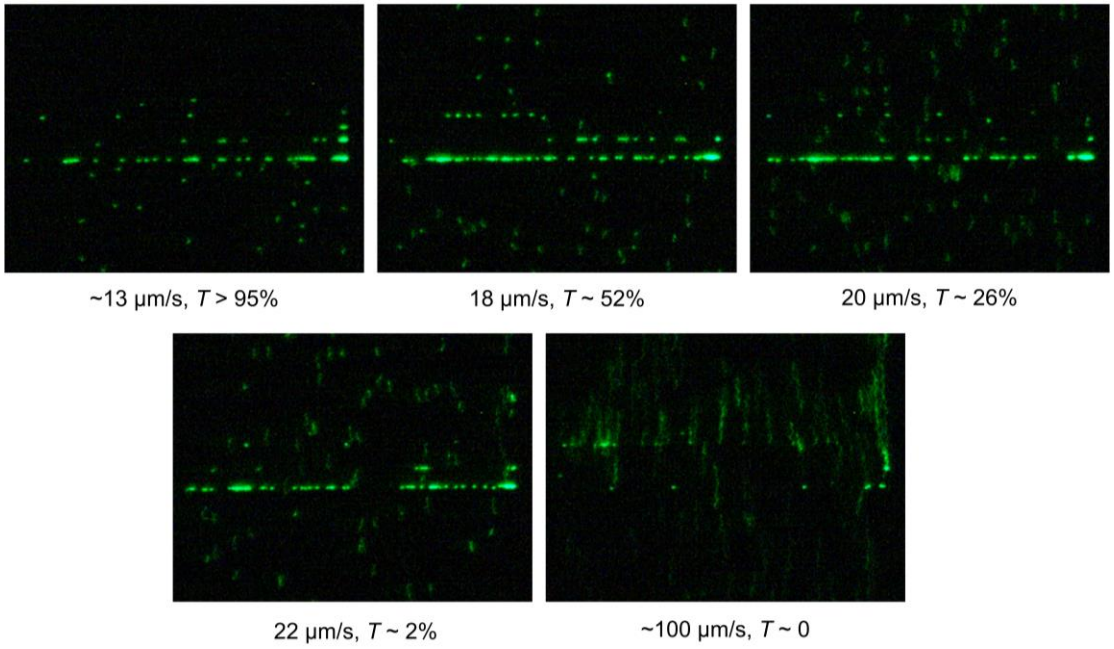

Fig. S4. Images of trapping 200 nm fluorescence nanoparticles under different flow velocities. (a) Trapping efficiency $T > 95\%$ when the flow velocity $v = 13$ μm/s; $T = 52\%$ when $v = 18$ μm/s; $T = 26\%$ when $v = 20$ μm/s; $T = 2\%$ when $v = 22$ μm/s; $T = 0$ when $v = 100$ μm/s. The laser power used was 1.2 mW.