Files description:

1. “nanotrapping1.avi” – AVI movie, size 3.5M

The movie shows trapping and moving of a 1μm latex bead by the laser beam near the double-pillar nanoarray fabricated on a glass substrate. The focus of the laser beam is moving parallel to the surface back in forth with an amplitude of the motion 3μm at a distance *a*=1.24μm above the surface of the sample. The bead can be seen as a bright light spot. The bright spot is produced by particle light scattering and its intensity provides a simple visual estimate of the magnitude of Brownian motion of the bead.

File is not processed – cropped version.

Notice slight jumps in the particle motion and a significant decrease of Brownian motion when the laser beam is stationary at the extreme positions (and hence the bead is attracted to an illuminated double-pillar nanomolecule). These jumps are due to the migration of the near-field trap from one illuminated pillar pair to the adjacent illuminated pair as the laser beam is moved along the surface of the nanostructured sample.

2. “nanotrapping1.avi” – AVI movie, size 5.2M

Trapping and moving of the same 1μm bead near the same nanostructured substrate at a smaller distance *a*=0.87μm above the surface of the sample. The files “nanotrapping1.avi” and “nanotrapping2.avi” are taken in succession and all other conditions (the laser power, the amplitude of the motion, etc.) are exactly the same.

File is not processed – cropped version.

Notice that the jumps in the particle motion at the smaller distance from the surface are much more pronounced compared with the previous movie (nanotrapping1.avi) captured at *a*=1.24μm. Also, the size of the bright spot produced by particle scattering is smaller which implies that the bead experienced less pronounced Brownian motion at smaller *a*.

More files can be found at the web-site
http://onnes.ph.man.ac.uk/nano/Sasha/tweezers