Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Selectable trapping or rotation of micro-particles using a plasmonic Archimedes spiral[1] CHEN-BIN HUANG, WEI-YI TSAI, JER-SHING HUANG, National Tsing Hua University — We demonstrate selectable trapping or rotation of dielectric micro-particles by optical near fields generated in a plasmonic Archimedes spiral. Depending on the handedness of circularly polarized excitation, plasmonic near fields can be engineered into either a super-focusing spot for particle trapping or a plasmonic vortex for particle rotation. The optical forces are numerically analyzed. Experimentally, selectable trapping or rotation of single microsphere and sphere cluster are both realized.

[1]This work was supported by the National Science Council in Taiwan under grant 100-2112-M-007-007-MY3.

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Date submitted: 01 Nov 2013 Electronic form version 1.4