Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Tuning the Polarization State of Light via Retardation with a Microstructured Surface SHANG-CHI JIANG, XIANG XIONG, Nanjing University, PAULO SARRIUGARTE, Nanooptics Group, CIC nanoGUNE Consolider, SHENG-WEI JIANG, Nanjing University, XIAO-BO YIN, YUAN WANG, University of California, Berkeley, RU-WEN PENG, DI WU, Nanjing University, RAINER HILLENBRAND, Nanooptics Group, CIC nanoGUNE Consolider, XIANG ZHANG, University of California, Berkeley, MU WANG, Nanjing University
— We report in this letter an approach to tune efficiently the phase difference of light in two orthogonal directions, $\Delta\phi$, by controlling the time retardation with a microstructured surface made of L-shaped metallic patterns. The $\Delta\phi$ can be linearly tuned accurately from -180 degree to 180 degree by changing the frequency of incident light. Particularly the amplitudes in two orthogonal directions are identical so that the polarization state always locates on a meridian of Poincaré sphere. Near field measurement confirms that there is indeed time retardation between the oscillations in the orthogonal directions of the L-shaped patterns. This approach offers a new way in manipulating the polarization state of light.

Xiang Xiong
Nanjing University

Date submitted: 05 Nov 2013 Electronic form version 1.4