

Supplementary Information for :

Plasmonic Three-Dimensional Dimpled Array from Highly Ordered Self-Assembled Liquid Crystal Defects

Hae-Wook Yoo^a, Yun Ho Kim^b, Jong Min Ok^a, Hyeon Su Jeong^a, Jung Hyun Kim^a, Baek Sik Son^a and Hee-Tae Jung^{*a}

^aDepartment of Chemical and Biomolecular engineering (BK-21), Korea Advanced Institute of Science and Technology, Daejeon 305-701, Republic of Korea. Fax: +82 42 350 3910; Tel: +82 42 350 3931; E-mail: heetae@kaist.ac.kr

^bAdvanced Functional Materials Group, Korea Research Institute of Chemical Technology, Daejeon 305-600, Republic of Korea.

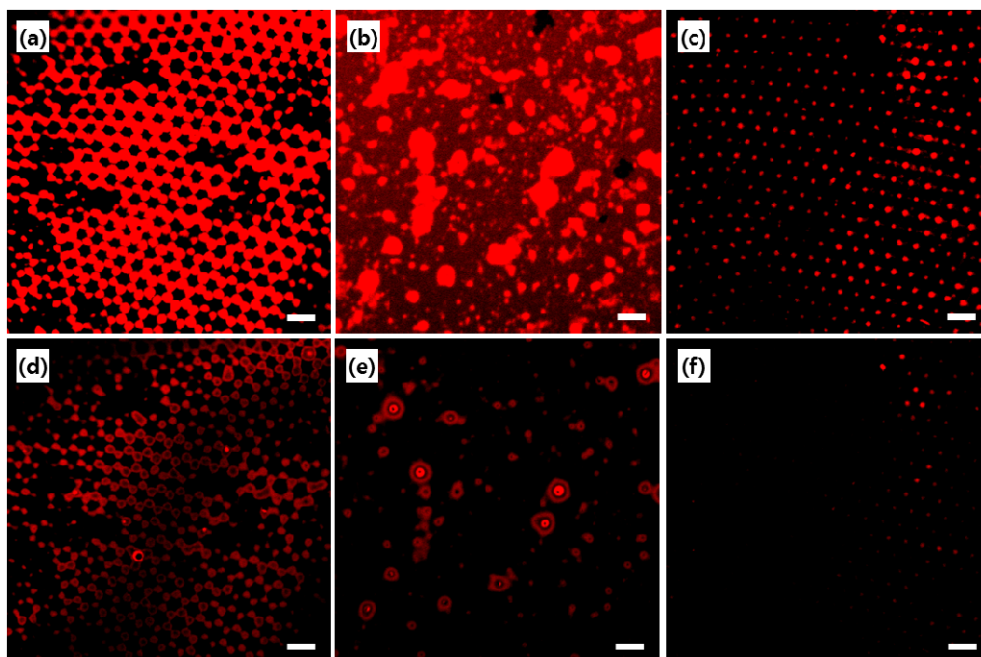


Fig. S1 Confocal microscope images for QDs on different substrates; (a) and (d) conical Au array, (b) and (e) plain Au film, (c) and (f) dimpled array without Au layer or PDMS second replica mold. These images were taken with two levels of detection gain value; (a)~(c) 600 and (d)~(f) 500.

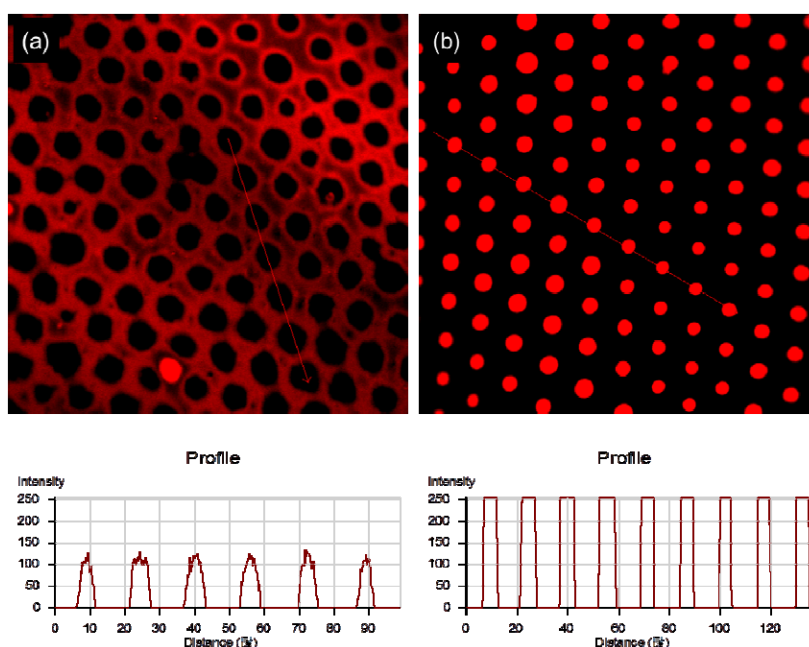


Fig. S2 Confocal microscope images and fluorescence intensity profiles for QDs on the Au coated polymer molds (detection gain value was 500). (a) Au conical array, first replica mold. (b) Au dimpled array, second replica mold.

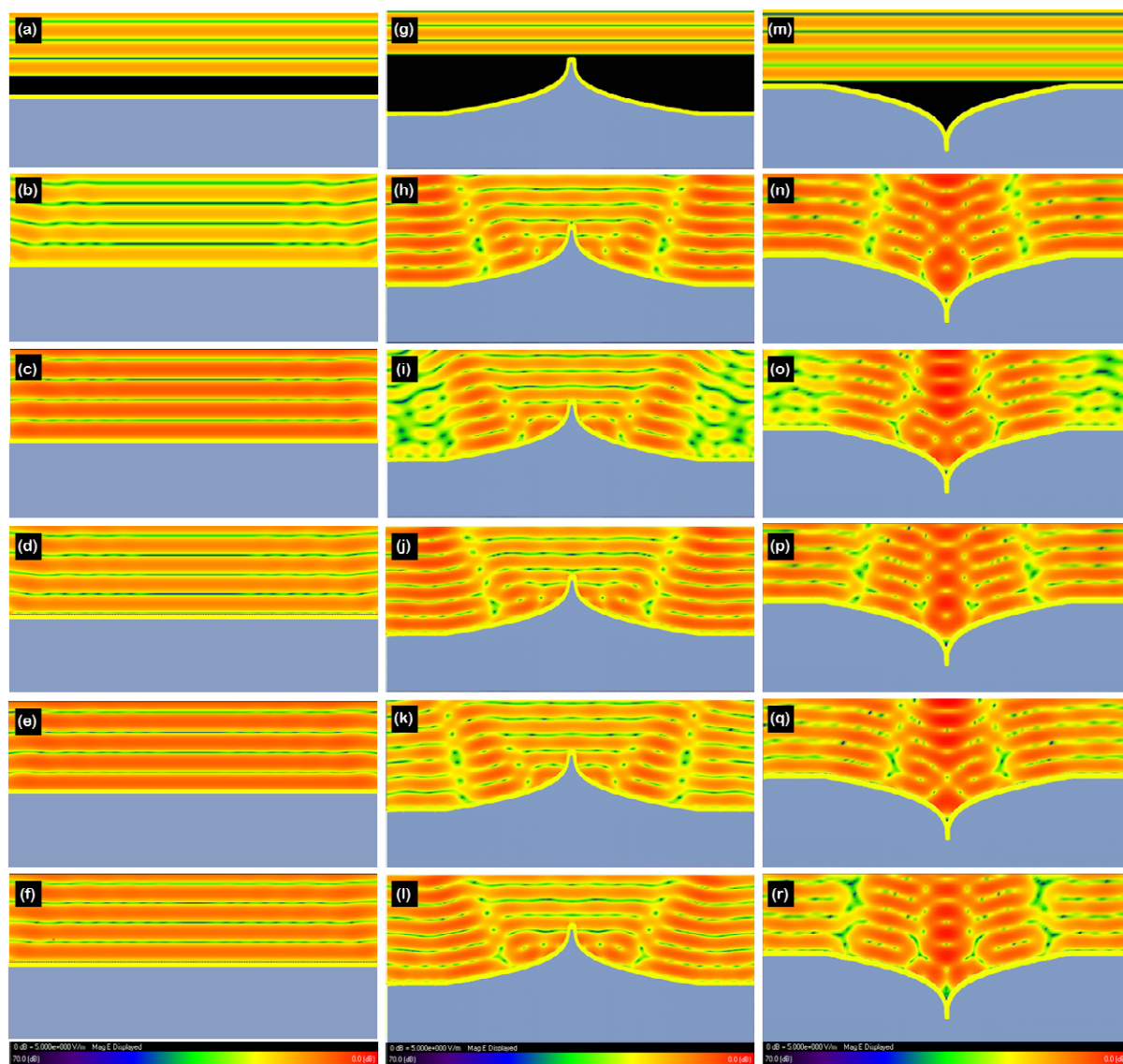


Fig. S3 Continuous field snapshot images from FDTD simulation: (a)~(f) Plain Au film; (g)~(l) Au coated conical configuration and (m)~(r) Au coated dimpled configuration. (a), (g) and (m) indicate the initial state of time domain. The other snapshot images for three kinds of geometries are taken with the 20 fs time interval.

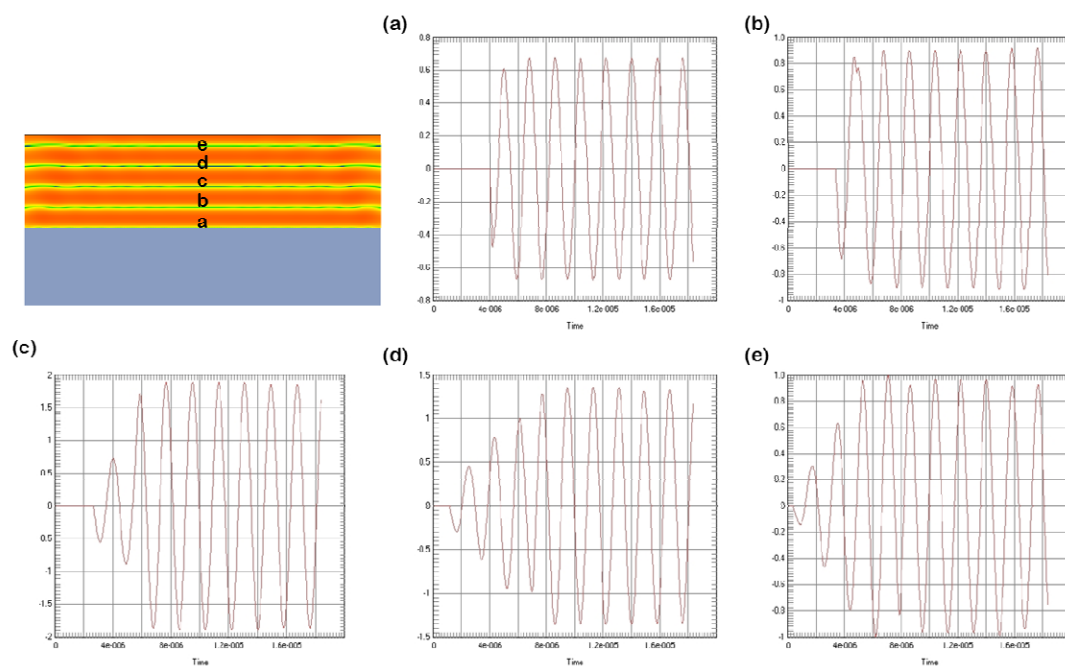


Fig. S4 Plots for near-zone field intensity (V/m, y-axis) vs. time sequence (ns) for the flat Au film. The data sampling locations are marked in the field snapshot image. The maximum degree of field enhancement was about 2.0-times compared to the input source (1V/m).

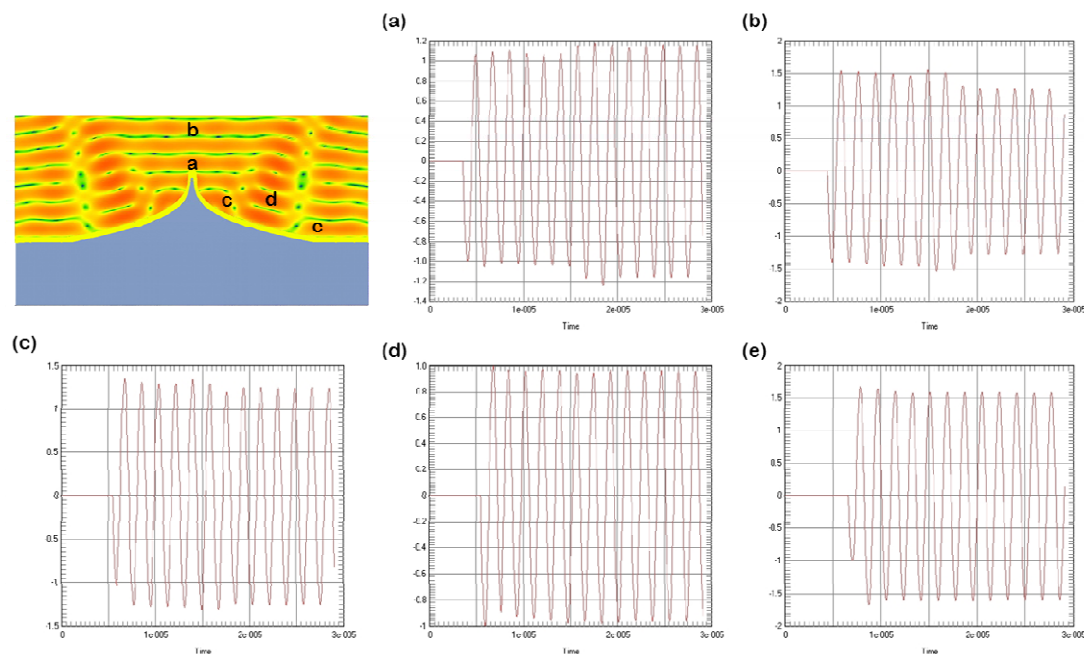


Fig. S5 Plots for near-zone field intensity (V/m, y-axis) vs. time sequence (ns) for the conical configuration. The data sampling locations are marked in the field snapshot image. The maximum degree of field enhancement was about 1.5-times compared to the input source (1V/m).

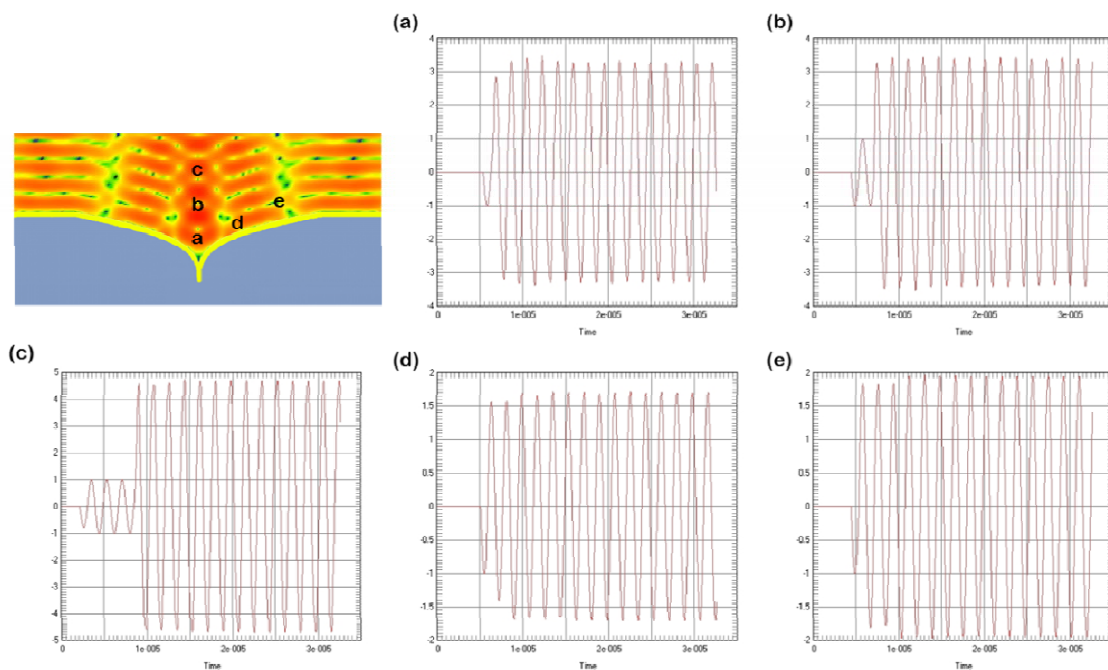


Fig. S6 Plots for near-zone field intensity (V/m, y-axis) vs. time sequence (ns) in the dimpled configuration. The maximum degree of field enhancement was about 5-times compared to the input source (1V/m).