Electronic Supplementary Material (ESI) for Nanoscale.

Supporting Information: Path-selective lasing in nanostructures based on molecular control of localized surface plasmons

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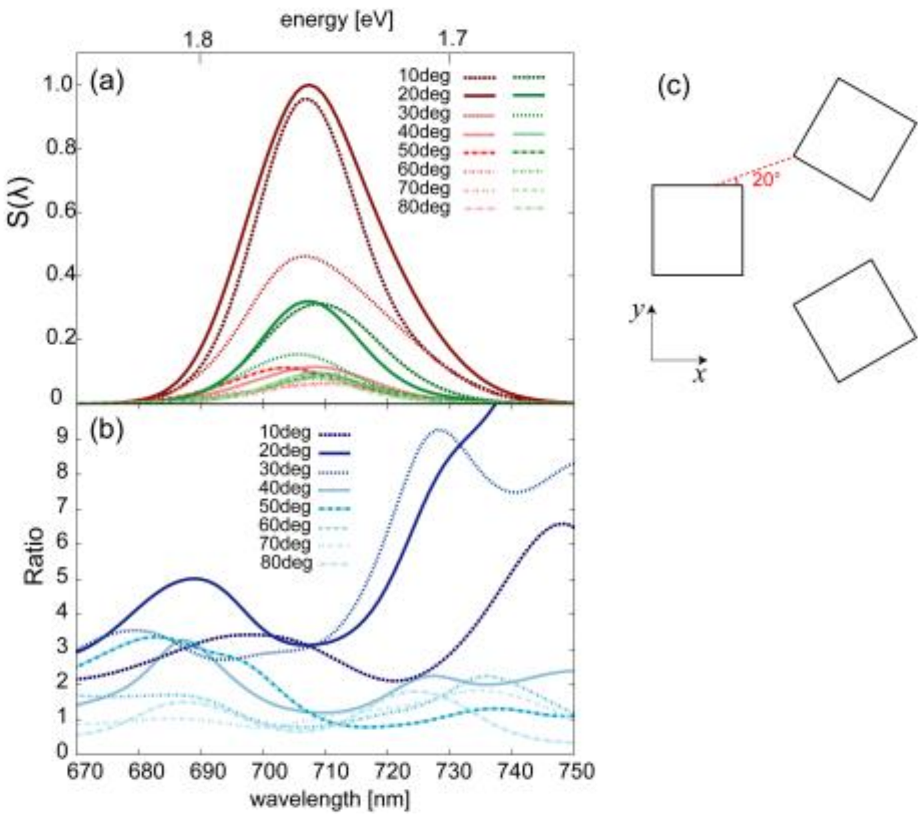

Fig.S1. (a) Spectra observed at the RT and RB detector regions for several anisotropic alignment angles (θ) of the host material, for zero dye density; (b) the ratio of the RT and RB spectra as a function of wavelength. These plots show that the field intensity in the RT region is obtained for θ=20, with a near-optimal ratio of the of the intensity between the dye absorption (690 nm) and emission (710 nm) wavelengths. Fairly large field intensity is observed in the RT path as shown in Fig. 3a.

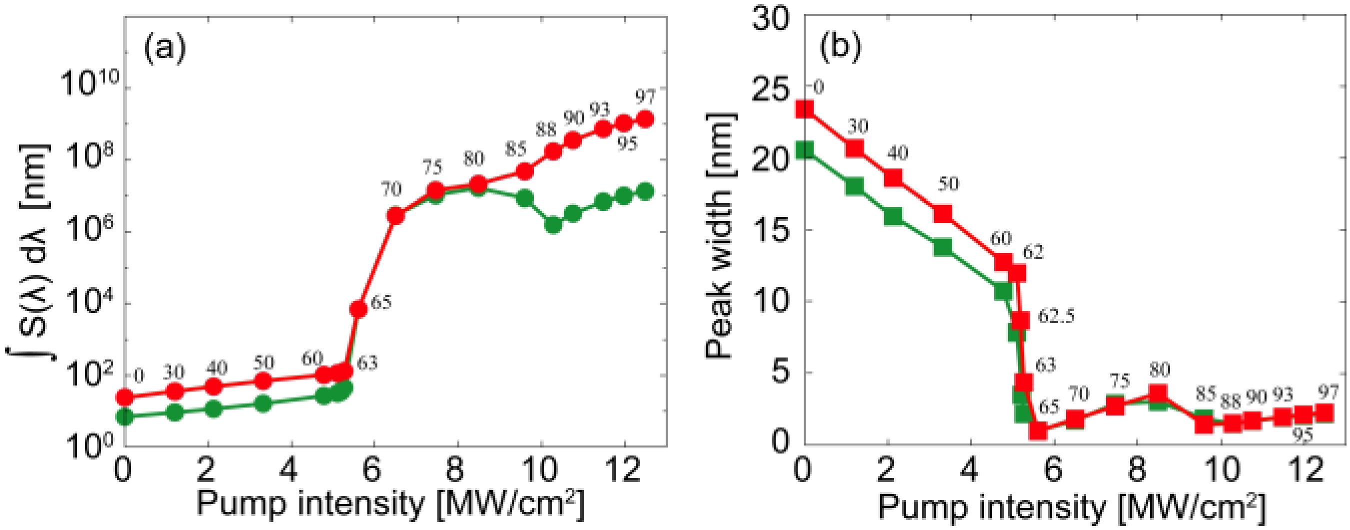

Fig.S2. Laser characteristics for a dye density of 0.1 [M]: (a) Integrated output signal (log-scale) detected at the RT (red) and RB (green) output regions, vs. incoming pump intensity. (b) The corresponding widths of the spectra at the RT (red) and RB (green) regions. Note that around 60-65 kV/cm the peaks are narrowed and the first threshold for increasing the integrated signal is found at both the RT and RB sides. After the second threshold. at a higher pump intensity (around 80-88 kV/cm), the lasing is predominantly at the RT region.

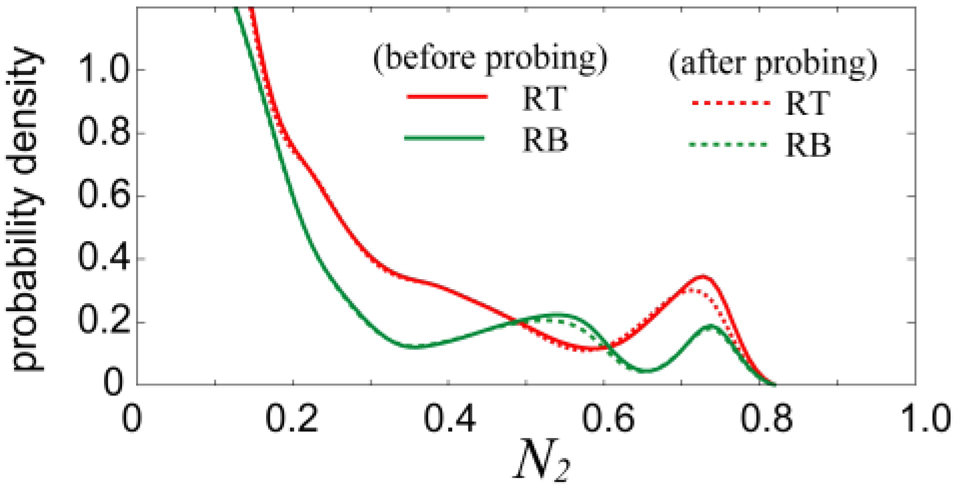

Fig.S3. The probability density for the excited state population with 70kV/cm pump amplitude in the top and bottom output regions (around the RT and RB cubes, respectively) before and after probing. Note that the probing reduces slightly the probability density around N_2 = 0.75 and 0.55 at the RT and RB regions, respectively, as a result of the weak lasing-type stimulated emission at this pump amplitude (which is below the second lasing threshold in Fig. 6)