

Electronic Supplementary Material (ESI)

Narrow band resonance in UV region of plasmonic nanotextured surface for refractive index sensor

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To further investigate the VOS sensing capabilities of PND-1 and PND-2, the $C_2H_4(OH)_2$ solution with different concentration was chosen and injected into PDMS-based microfluidic channel. It can be seen from Fig. S1, resonances are shifted 17.7nm for PND-1, shifted 31.7nm for PND-2 of the two peaks. It can be observed that the sensitivities of two devices are linear, the correlation coefficient (R^2) are 0.9952, 0.9632 for PND-1 and PND-2, respectively (Fig. S1). For sensing 100% $C_2H_4(OH)_2$ solution, the sensitivities of two devices are 12.6(nm/RIU) for PND-1, 22.6(nm/RIU) for peak_1 of PND-2, 22.8(nm/RIU) for peak_2 of PND-2. Highest value of FOM are still found in PND-2 of peak_1 with the value of 1.2 (Table S1).

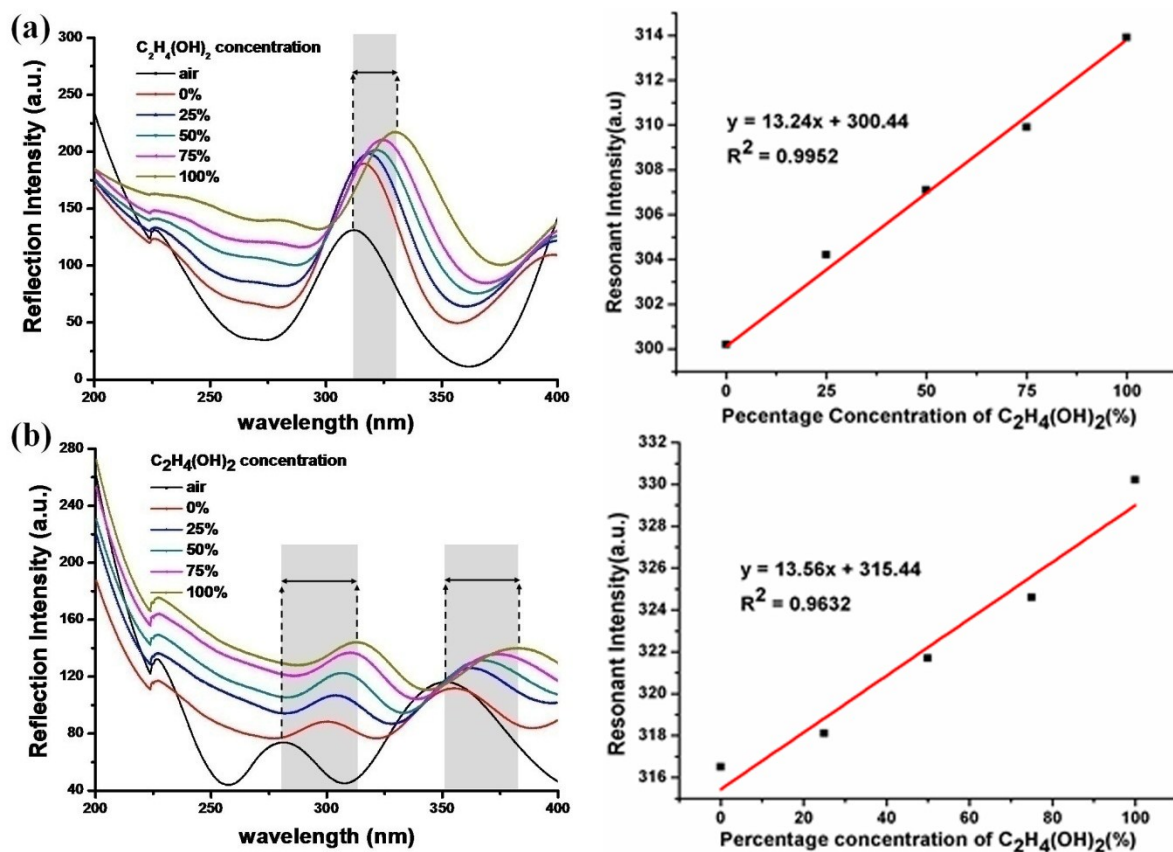


Fig. S1. The resonant wavelength shifting of PND-1 device(a) and PND-2 device (b) under different concentration of ethanediol, respectively.

Table S1. Sensing performance of PND as the refractive index sensor

PND-1	C ₂ H ₄ (OH) ₂	Resonant Shift (Δ)	FWHM	Sensitivity(nm/RIU)	FOM
	H ₂ O	4	30	2.8	0.1
	25%	5.6	32	4.0	0.1
	50%	9.2	32	6.6	0.2
	75%	12.1	34	8.6	0.3
	100%	17.7	31	12.6	0.4
PND-2 (peak_1)	C ₂ H ₄ (OH) ₂	Resonant Shift (Δ)	FWHM	Sensitivity(nm/RIU)	FOM
	H ₂ O	18	20	12.8	0.6
	25%	22	17	15.6	0.9
	50%	24.9	17	17.7	1.0
	75%	27.7	18	19.7	1.1
	100%	31.7	19	22.6	1.2
PND-2 (peak_2)	C ₂ H ₄ (OH) ₂	Resonant Shift (Δ)	FWHM	Sensitivity(nm/RIU)	FOM
	H ₂ O	4.9	52	3.5	0.1
	25%	11.1	31	8.0	0.3
	50%	16	28	11.5	0.4
	75%	21.9	40	15.7	0.4
	100%	31.7	100	22.8	0.2