Supporting Information (SI)

A simple and effective strategy *viz* aggregation-induced to improve two-photon absorption

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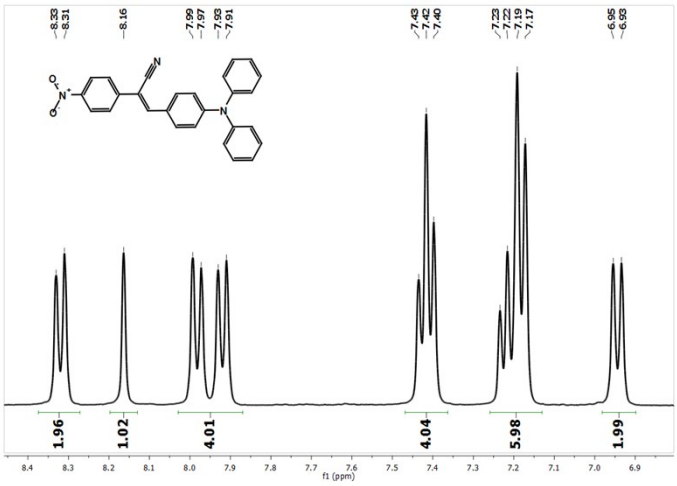
Table S1: The linear optical properties of **T1**, **T2** and **T3**.

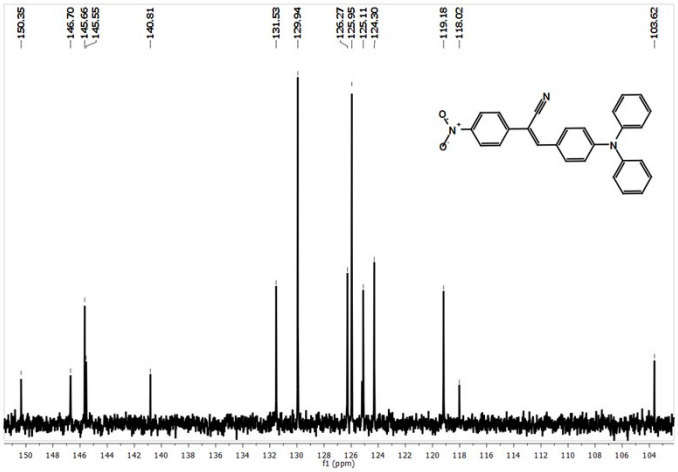
Table S2: The transition dipole moment calculation results of **T1**, **T2** and **T3**

Table S3: Crystal data of **T1** and **T2**.

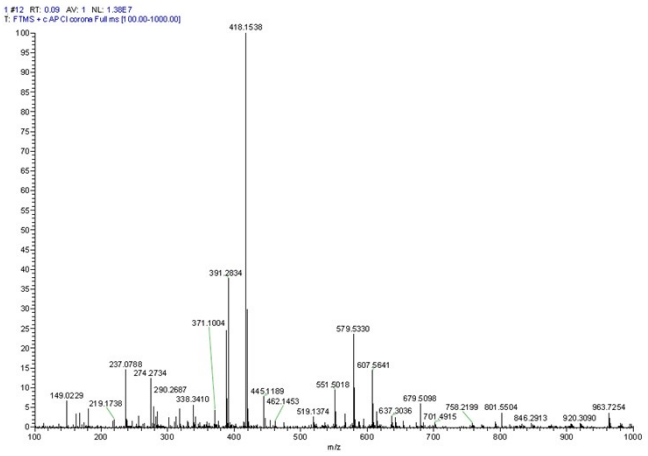
Fig. S1a: ^{1}H NMR, ^{13}C NMR and MS spectra of **T1**.



The ^{1}H NMR (400MHz) spectra of **T1** in DMSO-d_6

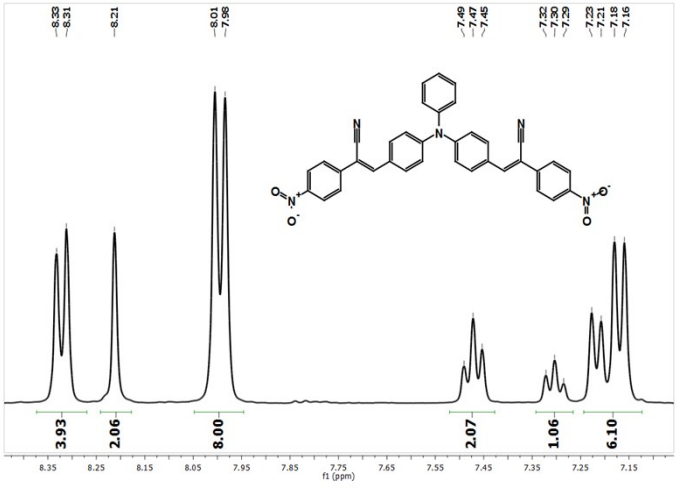


The ^{13}C NMR (100 MHz) spectra of **T1** in DMSO-d_6

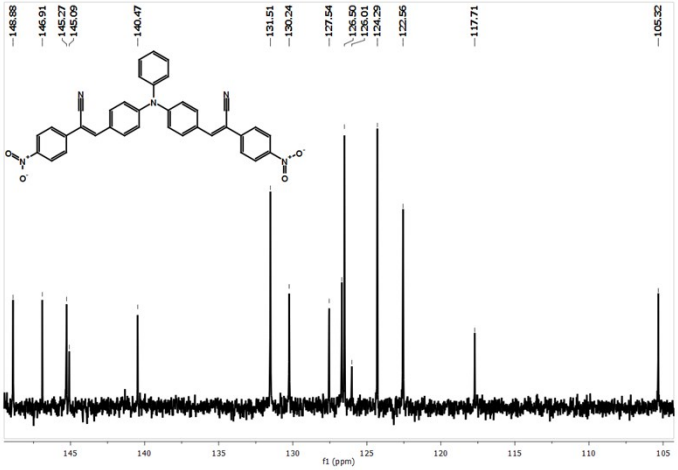


MS of **T1**

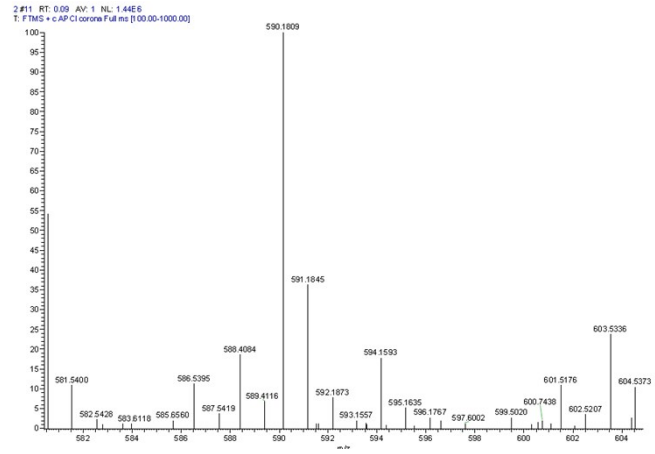
Fig. S1b: ^{1}H NMR, ^{13}C NMR and MS spectra of **T2**.



The ^{1}H NMR (400MHz) spectra of **T2** in DMSO-d_6

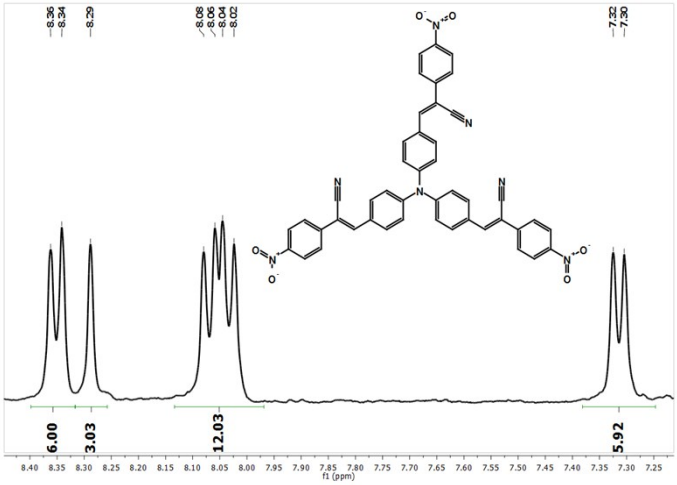


The ^{13}C NMR (100 MHz) spectra of **T2** in DMSO-d_6

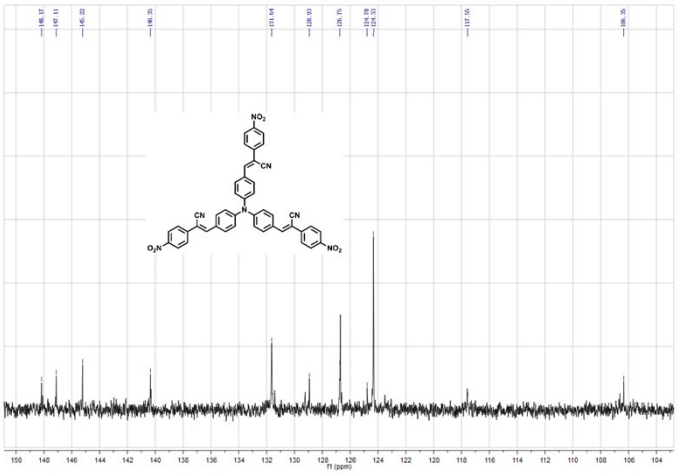


MS of **T2**

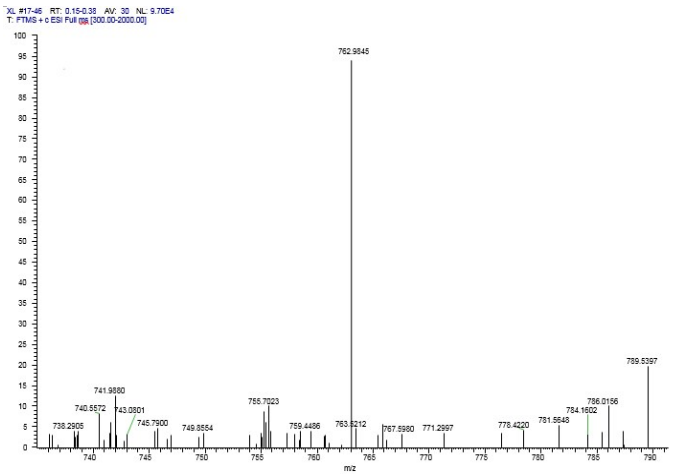
Fig. S1c: ^{1}H NMR, ^{13}C NMR and MS spectra of **T3**.



The ^{1}H-NMR of **T3** (DMSO- d_6, 400 MHz)



The ^{13}C NMR (100 MHz) spectra of **T3** in DMSO-d_6



MS of **T3**

Fig. S2: Linear absorption (a) and fluorescence (b) of **T2** in five organic solvents with different polarities at a concentration of 5×10^{-5}mol L^{-1}.

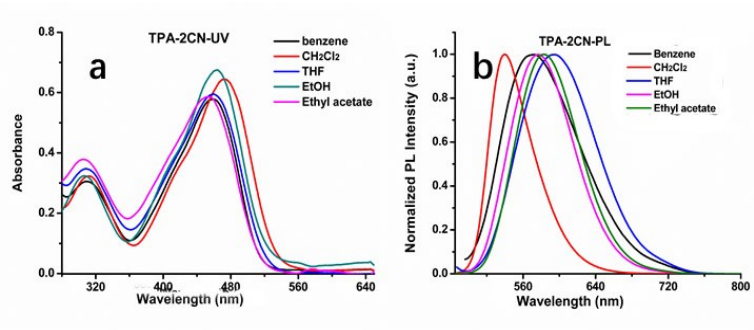


Fig. S3: Linear absorption (a) and fluorescence (b) of **T3** in five organic solvents with different polarities at a concentration of 5×10^{-5}mol L^{-1}.

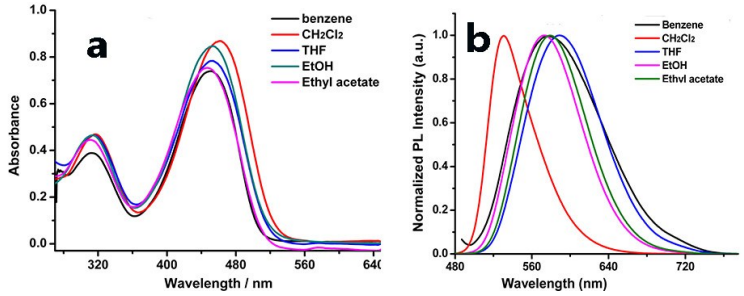


Fig. S4: Lippert-Mataga plots for **T1, T2** and **T3**

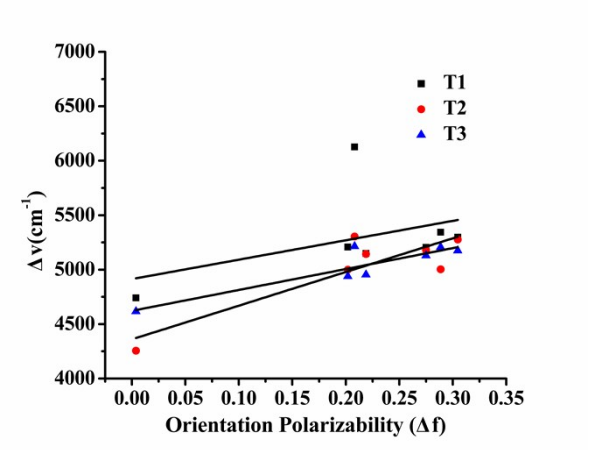


Fig. S5: Particle size distribution of **T2** in mixtures with different water fractions: (a) Water/DMF (40/60, v/v); (b) Water/DMF (50/50, v/v); (c) Water/DMF (90/10, v/v).

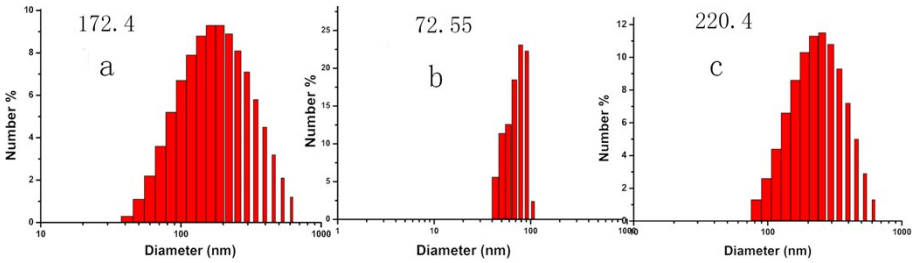


Fig. S6: The 2D structures of **T1** (a) and **T2** (b)

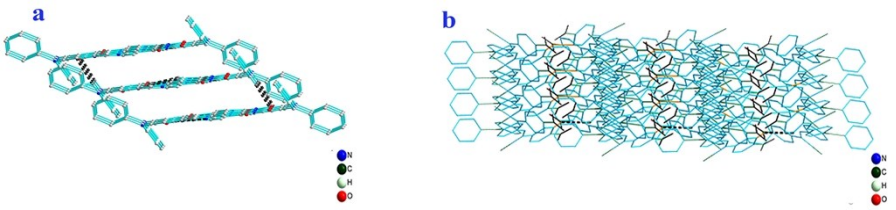


Fig. S7: The open aperture Z-scan data of **T1** (a) and **T3** (b, c) in aggregates and in pure solution

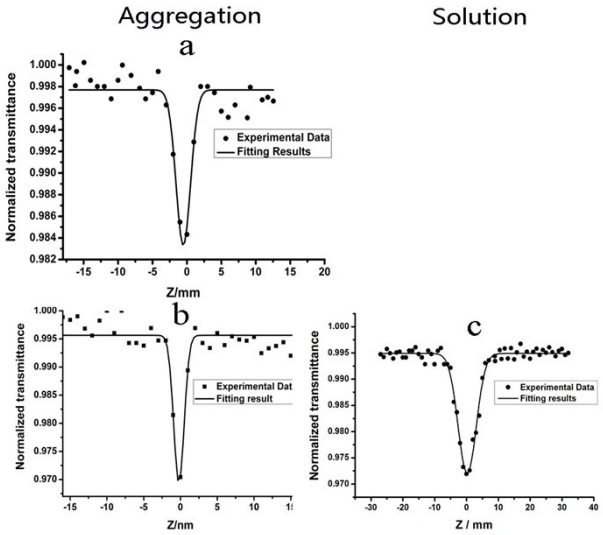


Fig. S8: Photon-bleach experiment of **T1**, **T2** and **T3.**

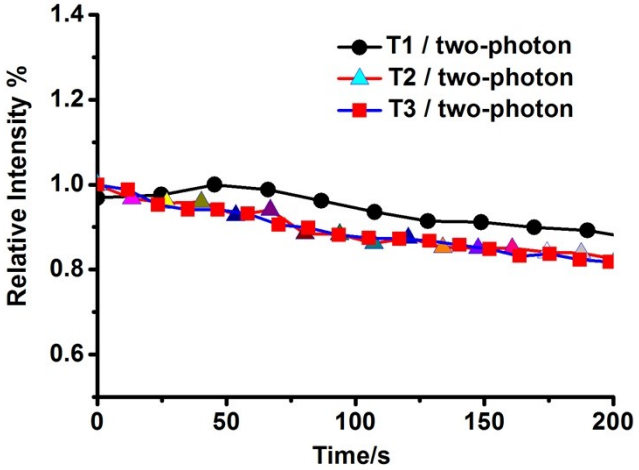


Table S1: The Linear absorption properties of **T1**、**T 2 and T3.**

Compounds	Solvents	λ_{max}[a]	λ_{max}[b]	$\Delta\nu$[c]
T1	Benzene	296, 435	548	4740.33
	Dichloromethane	297, 451	549	3958.01
	Tetrahydrofuran	294, 434	572	5558.96
	Ethanol	293, 441	586	5585.21
	Ethyl acetate	293, 426	593	6610.77
T2	Benzene	310, 460	572	4256.61
	Dichloromethane	312, 472	540	2667.92
	Tetrahydrofuran	309, 460	594	4904.11
	Ethanol	307, 463	577	4267.25
	Ethyl acetate	306, 453	583	4922.40

T3	Benzene	312, 450	568	4616.59
	Dichloromethane	317, 461	531	2859.58
	Tetrahydrofuran	315, 451	588	5166.15
	Ethanol	313, 453	573	4623.05
	Ethyl acetate	307, 454	580	4785.05

[a] Absorption peak position in nm (5×10^{-5} mol L^{-1}). [b] Emission Peak position of **T1-T3** in nm (5×10^{-5} mol L^{-1}), excited at the absorption maximum. [c] Stokes shift in cm^{-1}.

Table S2: The transition dipole moment calculation results of **T1**, **T2** and **T3**

Compounds	Angstrom radius with optimized structure(Å)	μ_e-μ_g(D)
T1	5.66	4.79
T2	6.27	8.35
T3	6.99	6.42

Table S3: Crystal data of compounds **T1** and **T2**

Compounds	**T1**	**T2**
Empirical formula	$C_{27}H_{19}N_3O_2$	$C_{36}H_{23}N_5O4$
Formula weight	417.45	589.59
Crystal system	Monoclinic	Monoclinic
Space group	P2(1)/c	C2/c
a[Å]	11.165(5)	34.868(3)
b[Å]	7.545(5)	9.7729(9)
c[Å]	25.708(5)	29.980(3)
α[°]	90.000(5)	90
β[°]	96.505(5)	119.721(3)
γ[°]	90.000(5)	90
V[Å^3]	2151.7 (18)	8871.9(15)
Z	4	12
T[K]	296(2)	296(2)
D_{calcd}[g·cm^{-1}]	1.289	1.055
F(000)	872	884
μ[mm^{-1}]	0.08	0.089
θrange[°]	2.6–22.3	1.34-25.00
Total no. data	14789	30908
No. unique data	3774	7833
R_{int}	0.030	0.0489
R_1	0.0454	0.0515
wR_2	0.1559	0.1475
GOF	1.136	0.919