Supporting Information of the manuscript entitled "Cost-effective Solar Concentrators based on Red Fluorescent Zn(II)-Salicylaldiminato Complex", by *Pierpaolo Minei,*[a] *Elisabetta Fanizza,*[b,c] *Antonio M. Rodríguez,*[d] *Ana Belén Muñoz-García,*[d] *Paola Cimino,*[e] *Michele Pavone,*[d,*] *Andrea Pucci*[f,g,*]

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The Thorlabs FDS1010 photodiode is ideal for measuring both pulsed and CW light sources, by converting the optical power to an electrical current. The Si detector is mounted on a 0.45"x0.52" ceramic wafer package with an anode and cathode. The photodiode anode produces a current, which is a function of the incident light power and the wavelength (Figure S1)

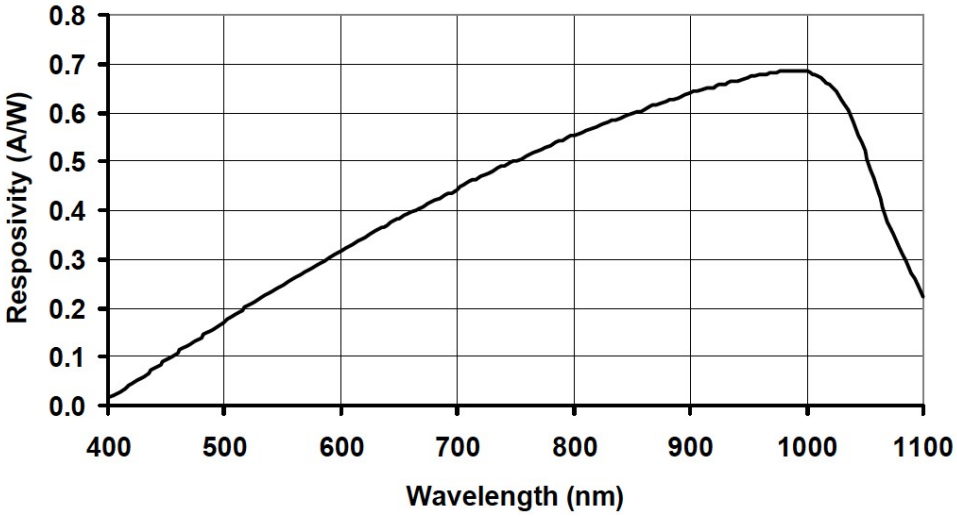

Figure S1. Typical Responsivity curve using Thorlabs calibration services

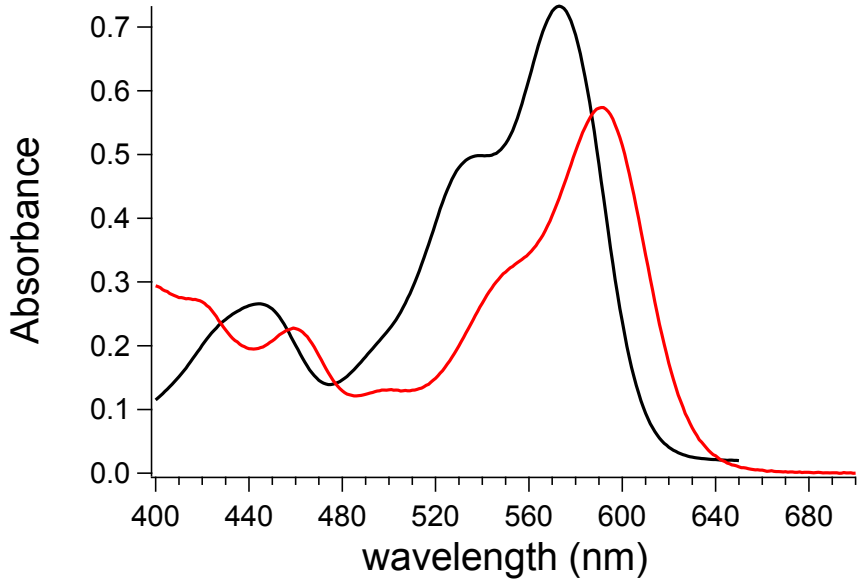

Figure S2. Absorption spectra of PMMA film containing 1% of different dyes: LR (black), *ZnL* (red). For all systems, the film thickness was 25±5 μm.

Table S1. Convergence study of the correct functional for the description of the *ZnL* system in DOX solution, calculations carried out with the LANL2TZ+ and 6-311++G(d,p) basis set.

PCM=DOX			
Entry	λ_{abs} (nm)	λ_{ems} (nm)	Stokes Shift (nm)
B3LYP	549.02	586.58	37.558
CAM-B3LYP	463.17	508.71	45.543
M062x	470.11	517.74	47.624
PBE0	525.26	561.43	36.166

Table S2. Convergence study of the basis set for the description of the Stokes Shift for the *ZnL* gas-phase system. Zn atom is described with LANL2TZ+ ECP and basis set.

B3LYP/(basis set)				
Entry	λ_{abs} (nm)	λ_{ems} (nm)	Stokes Shift (nm)	n. basis func.
6-31G(d)	524.25	556.41	32.16	505
6-31+G(d,p)	535.07	569.14	34.07	675
6-31+G(2d,2p)	534.26	568.47	34.21	877
6-31++G(d,p)	535.07	569.14	34.07	689
6-31++G(2d,2p)	534.29	568.52	34.23	891
6-311G(d,p)	524.8	558.72	33.92	689
6-311++G(d,p)	531.52	566.51	34.99	831
6-311++G(2d,2p)	530.7	565.92	35.22	1033

Table S3. Computed structural and electronic parameters of ground-state (S_0) *ZnL* in DOX and THF solutions: distances in Å, angles and dihedral angles in degrees (º), S_0-S_1 vertical excitation energies (λ_{abs}, in nm) computed on the ground state minima, values inter parenthesis are the relative computed oscillator strength (*f*).

	DOX		**THF**	
	***ZnL*-PCM**	***ZnL*-DOX_2-PCM**	***ZnL*-PCM**	***ZnL*-THF_2-PCM**
Zn-N1 (Zn-N1´)	2.117 (2.117)	2.151 (2.153)	2.128 (2.128)	2.158 (2.159)
Zn-O (Zn-O´)	1.976 (1.976)	2.021 (2.020)	1.989 (1.989)	2.032 (2.032)
N1-C1 (N1´-C1´)	1.380 (1.380)	1.379 (1.378)	1.378 (1.378)	1.376 (1.377)
C1-C2	1.427	1.429	1.428	1.429
C2-N2	1.157	1.157	1.157	1.157
O-Zn-N1	87.1	85.9	87.0	85.7
N1-Zn-N1´	79.0	78.2	78.9	78.2
N1-C1-C2	121.1	121.1	121.3	121.4
C1-C2-N2	176.9	176.7	177.6	177.4
N1-C1-C2-N2	0.0	1.0	0.0	0.4
N1-O-O´-N1´	0.0	0.3	0.0	1.1
N1-C3-C-C4	0.0	2.7	0.0	0.3
Zn-solvent	--	2.357	--	2.292
λ_{abs} exp.	589		595	
λ_{abs} TD-DFT	549 (0.886)	573 (0.796)	547 (1.043)	580 (0.990)

Table S4. Computed structural and electronic parameters of excited-state (S_1) *ZnL* in DOX and THF solutions: distances in Å, angles and dihedral angles in degrees (º). Vertical emission energies (λ_{ems}, in nm) computed on the first excited state minima, values inter parenthesis are the relative computed oscillator strength (*f*), structural deviations from the ground state minima are also reported ($\Delta_{S0\text{-}S1}$).

	***ZnL*-DOX$_2$-PCM**	$\Delta_{S0\text{-}S1}$	***ZnL*-THF$_2$-PCM**	$\Delta_{S0\text{-}S1}$
Zn-N1 (Zn-N1´)	2.150 (2.158)	-0.001 (0.005)	2.165 (2.165)	0.007 (0.006)
Zn-O (Zn-O´)	2.024 (2.027)	0.003 (0.007)	2.036 (2.036)	0.004 (0.004)
N1-C1 (N1´-C1´)	1.363 (1.367)	-0.016 (-0.011)	1.359 (1.359)	-0.017 (-0.018)
C1-C2	1.419	-0.010	1.418	-0.011
C2-N2	1.160	0.003	1.161	0.004
O-Zn-N1	86.8	0.9	86.2	0.5
N1-Zn-N1´	79.1	0.9	78.9	0.7
N1-C1-C2	121.1	0.0	121.3	-0.1
C1-C2-N2	176.8	0.1	177.6	0.2
N1-C1-C2-N2	1.9	0.9	0.6	0.2
N1-O-O´-N1´	0.1	-0.2	2.1	1.0
N1-C3-C-C4	2.8	0.1	2.1	1.8
Zn-solvent	2.327	-0.030	2.271	-0.021
λ_{ems} exp.	621	--	630	--
λ_{ems} TD-DFT	615 (0.796)	--	631 (0.989)	--

Table S5. Computed structural and electronic parameters of ground-state (S_0) excited-state (S_1) of *ZnL* in PMMA, and corresponding structural variations ($\Delta_{S0\text{-}S1}$): distances in Å, angles and dihedral angles in degrees (º). Vertical excitation (λ_{abs}) and emission (λ_{ems}) energies in nm, values inter parenthesis are the corresponding computed oscillator strength (*f*).

	Ground State ***ZnL*-PMMA$_2$-PCM**	***Excited State*** ***ZnL*-PMMA$_2$ –PCM**	$\Delta_{S0\text{-}S1}$
Zn-N1 (Zn-N1´)	2.153 (2.153)	2.162 (2.162)	0.009 (0.009)
Zn-O (Zn-O´)	2.021 (2.021)	2.030 (2.030)	0.009 (0.009)
N1-C1 (N1´-C1´)	1.377 (1.377)	1.361 (1.360)	-0.016 (-0.017)
C1-C2	1.4	1.4	0.0
C2-N2	1.2	1.2	0.0
O-Zn-N1	85.5	85.8	0.3
N1-Zn-N1´	78.3	79.0	0.7
N1-C1-C2	121.2	121.2	0.0
C1-C2-N2	177.0	177.1	0.1
N1-C1-C2-N2	1.3	2.4	1.1
N1-O-O´-N1´	0.2	1.8	1.5
N1-C3-C-C4	2.5	1.6	-0.9
Zn-solvent	2.350	2.306	-0.044
λ_{abs} TD-DFT	577 (0.767)	--	--
λ_{ems} TD-DFT	--	619 (0.887)	--

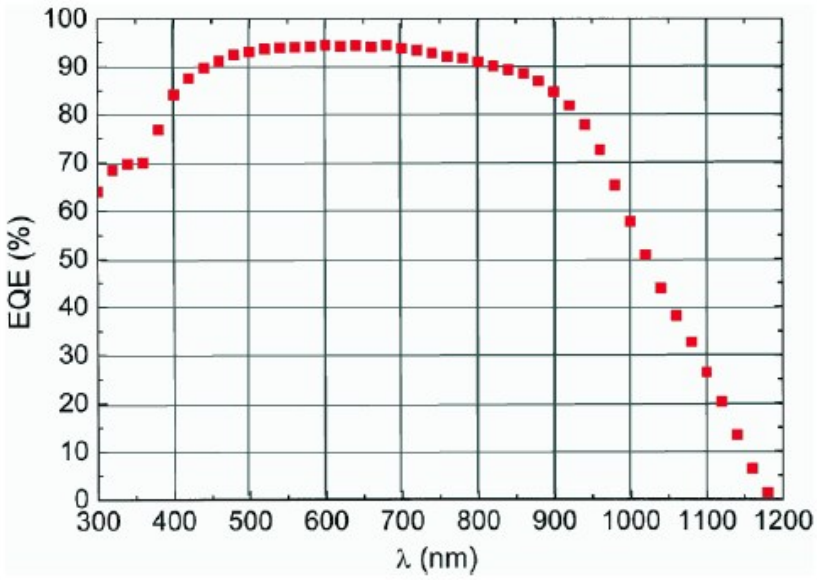

Figure S3. External quantum efficiency of the PV cell